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ABSTRACT

The Environmental Quality Ad Hoc Committee has prepared this report for the Governor's Natural Resources Council (Nevada). It is a compilation of available factual data focusing attention on needed statutory and administrative changes to preserve Nevada's environmental heritage and from which recommendations for future budgetary and legislative considerations have been made. It is hoped the findings presented may serve as points of departure in the search for ways to preserve the quality of life in Nevada and useful for laying a foundation for rational decision making. Section I reviews reports from subcommittees covering the environmental situation in the areas of education, taxation, minerals and mining, wildlife, forestry, water and air quality, open spaces, and soils. Section II presents comments and public reaction from various state organizations, individuals, and agencies. Section III offers recommendations from each of the subcommittees, stating the rationale and basis for their conclusions and recommendations. (BL)

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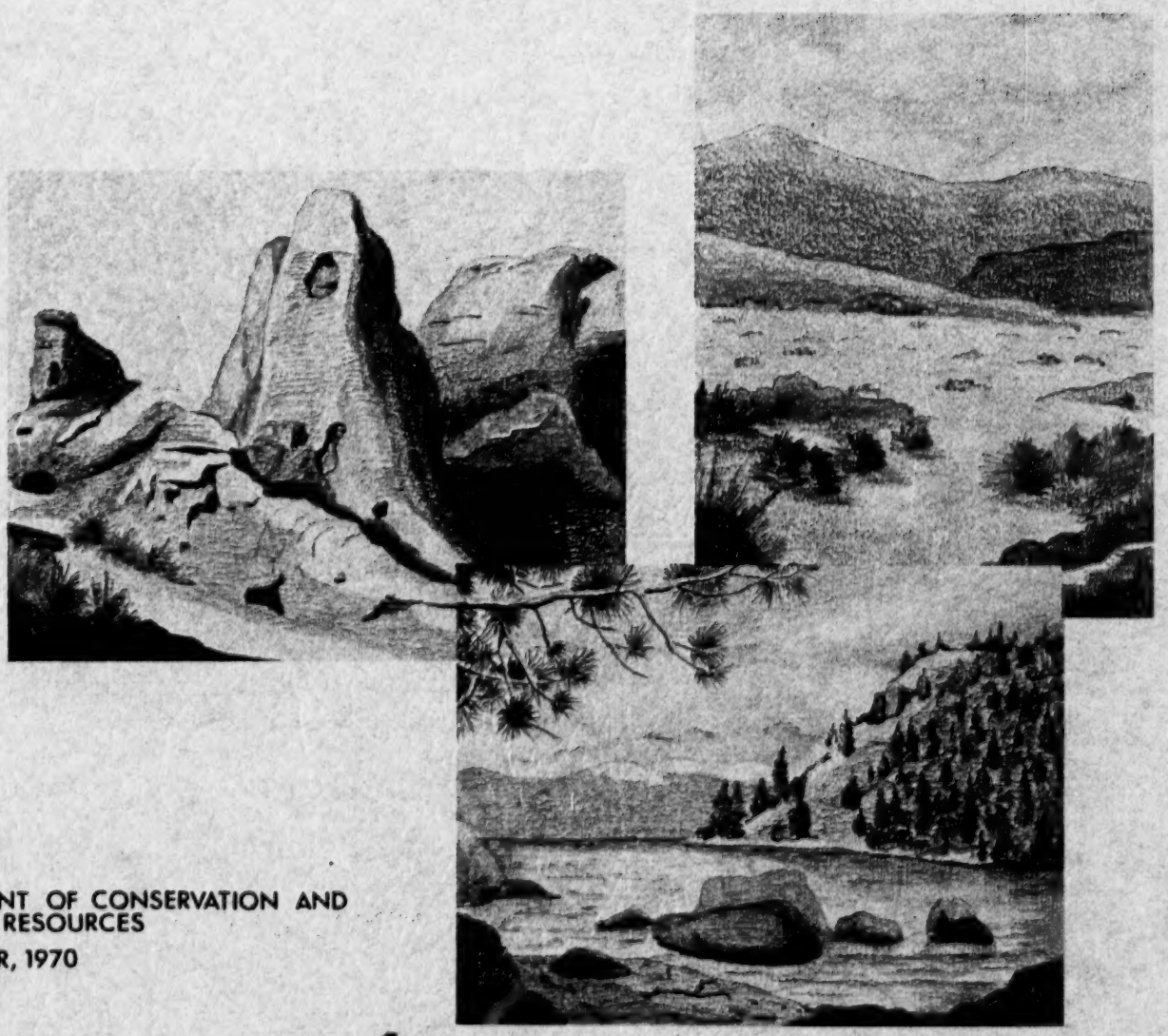
PRESERVING NEVADA'S ENVIRONMENTAL HERITAGE

FINAL REPORT ··· GOVERNOR'S NATURAL RESOURCES COUNCIL



DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES

NOVEMBER, 1970

SE 013 860

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PRESERVING NEVADA'S ENVIRONMENTAL HERITAGE:

A Report

of the

Ad Hoc Committee on Environmental Quality

to the

Governor's Natural Resources Council

June 1970

ELMO J. DERICCO, *Director*
NORMAN S. HALL, *Assistant Director*

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PAUL LAXALT
Governor

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WATER RESOURCES
OIL AND GAS CONSERVATION

STATE OF NEVADA

Department of Conservation and Natural Resources

OFFICE OF THE DIRECTOR

CARSON CITY, NEVADA 89701

December 2, 1970

The Honorable Paul Laxalt
Governor of Nevada
State Capitol
Carson City, Nevada 89701

Dear Governor Laxalt:

Nevada's environmental heritage and its unique ecological endowments are not yet despoiled. This publication, the final report of "Preserving Nevada's Environmental Heritage" brings this condition into sharp focus, especially when we compare Nevada's environmental problems to those in other parts of our Nation. We do have isolated problem areas and for the most part this report identifies them.

The sub-committees in each study area have accumulated vast amounts of data and have made specific recommendations to correct existing deficiencies. The Governor's Natural Resources Council feels that these recommendations must be evaluated individually on their own merit by both the administration and the Legislature.

The monumental effort by the sub-committees and concerned citizens of this State has enabled the Governor's Natural Resources Council to provide you with broad recommendations for evaluating the administration and management of Nevada's environment. The Council's comments and recommendations are enumerated on page vi. of this report.

In appreciation of the great effort that has been exerted by everyone concerned, the Council unanimously adopted the following resolution at their 70/4 meeting on November 30, 1970:

BE IT RESOLVED, that the Governor's Natural Resources Council accepts with appreciation the contributions of the sub-committees, the conservation organizations, the coordinators, and the individuals, who developed the background material for the recommendations appended to this resolution.

We would like to express our gratitude to John Bawden, State Highway Engineer, and to the Photographic and Duplicating Section of the Highway Department, for the offset printing and collating of this final report. This report was compiled through existing budgetary considerations and without their immense contribution, it would not have been possible.

Although Nevada, at this point, is in an enviable position with regard to its environmental problems, the seeds of environmental despoliation are ever present. Unless we take the needed steps to correct existing deficiencies and prevent future problems, we could very well face the irreversible damage which exists in many areas of our Nation.

We strongly urge that the Council's comments and recommendations and this report be made available immediately to all concerned public officials and citizens. The work in this report represents the best information available to us at this time and should provide the best foundation for an attack on our environmental problems.

Very truly yours,

Elmo J. DeRicco

Elmo J. DeRicco, Chairman
Governor's Natural Resources Council

EJD:m

November 3, 1970

To: Governor's Natural Resources Council

The Environmental Quality Index Committee has prepared this recommended draft summary for review by the Governor's Natural Resources Council. It is the opinion of the Committee that the final draft approved by the Council should be submitted to the Governor for his appropriate action.

In preparing this draft, the Committee wishes to acknowledge the help and assistance of Mr. Havel and Mr. Long.

The following recommendations on action necessary to preserve Nevada's environmental heritage are proposed.

1. An executive order be issued instructing all State agencies to give full consideration to ecological and environmental factors in planning, decision-making, and education.

2. There is a need to create a point of central coordination for all Federal, State and local programs and plans dealing with matters affecting the State's environment.

3. A thorough legislative review of the statutes governing all existing State and local regulatory agencies should be conducted to insure that these agencies have authority to act on all environmental matters within their purview.

4. The enforcement potential of regulatory State and local agencies should be improved.

5. The State should seek the full cooperation of all Federal agencies in the joint planning on environmental matters.

6. There is a need for additional legislation authorizing political subdivisions of the State to take appropriate action on pollution.

7. There is a need for a State plan setting forth uniform goals and policies on environment and environmental quality.

8. Existing information and criteria on environmental matters is inadequate and additional research is required at all levels. The Committee cautions

that premature action based on incomplete criteria is ill-advised and that a meaningful environmental quality index must be factually based.

9. It is recommended that environmental matters be handled within the framework of existing State agencies at this time rather than through the creation of a new agency.

10. It is recommended that the Governor be fully cognizant of the many facts and criteria pertaining to environment that have been contributed and developed by concerned citizens of the State and that are appended hereto and consult with all concerned agencies on these matters.

Edward C. Maw, Chairman

Dale W. Bohmont, Member

W. E. Hancock, Member

GOVERNOR'S NATURAL RESOURCES COUNCIL

Final Report - Preserving Nevada's Environmental Heritage

Approved November 30, 1970

The following comments and recommendations on action necessary to preserve Nevada's environmental heritage are proposed:

1. An executive order be issued instructing all State agencies to give full consideration to ecological and environmental facts in planning, decision-making, and education.

2. There is a need to create a point of central coordination for all Federal, State and local programs, and plans dealing with matters affecting the State's environment.

3. A thorough review by the Legislative Commission of the statutes governing all existing State and local regulatory agencies be conducted to ensure that these agencies have authority to act on all environmental matters within their purview, and report to the succeeding session of the Legislature.

4. The enforcement potential of regulatory State and local agencies should be improved.

5. The State should seek the full cooperation of all Federal agencies in the joint planning on environmental matters.

6. There is a need for additional legislation authorizing political subdivisions of the State to take appropriate action on pollution.

7. There is a need for a State plan setting forth uniform goals and policies on environment and environmental quality.

8. Existing information and criteria on environmental matters is inadequate and additional research is required at all levels. The Council cautions that premature action based on incomplete criteria is ill-advised and that a meaningful environmental quality index must be factually based.

9. It is recommended that environmental matters be handled within the framework of existing State agencies at this time rather than through the creation of a new agency.

10. It is premature for this Council to endorse or reject any of the specific recommendations within the supplementary

material but it is recognized that much time and effort has been devoted by dedicated, concerned citizens of the State. It is, therefore, recommended that the Governor be fully cognizant of the many facts and criteria pertaining to environment that have been contributed, and that he consult with the proper agencies on any of these matters which require additional information.

Elmo J. DeRicco, Chairman
Governor's Natural Resources Council

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Preserving Nevada's Environmental Heritage

• section 1

ELMO J. DERICCO, *Director*
ERMAN S. HALL, *Assistant Director*

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PAUL LAXALT
Governor

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STATE LANDS
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STATE OF NEVADA

Department of Conservation and Natural Resources

OFFICE OF THE DIRECTOR
CARSON CITY, NEVADA 89701

July 1, 1970

Mr. Edward C. Maw
Chairman
Environmental Quality Index Committee
of the Governor's Natural Resources Council
P.O. Box 1331
Reno, Nevada 89501

Dear Ed:

This report, entitled "Preserving Nevada's Environmental Heritage", represents a monumental effort by the Ad Hoc Committee. It should be noted that in order to complete the report within the time limits established, the committee chairmen and the members of their committees were required to give this program first priority in their work schedules.

Robert V. Long, Staff Forester, Division of Forestry, and James T. Havel, Deputy Director, Research Division, Legislative Counsel Bureau, devoted many hours in coordinating, consolidating, and finalizing this report. To them, all of us owe our gratitude.

Although this report is not the final answer to this complex subject, and many of its provisions will be challenged, it does contain a compilation of the available factual data from which recommendations for future budgetary and legislative considerations have been made. With the input of critics who will review the report after it is released, it should provide the best information available to us today for action on our environmental problems.

Respectfully submitted,

Elmo J. DeRicco

ELMO J. DeRICCO
Chairman,
Governor's Natural Resources Council

ELMO J. DeRICCO, *Director*
Department of Conservation
and Natural Resources

GEORGE ZAPPETTINI
State Forester

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201 South Fall Street
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STATE OF NEVADA
DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES
DIVISION OF FORESTRY
CARSON CITY, NEVADA 89701

July 1, 1970

Mr. Elmo J. DeRicco
Director
Department of Conservation and Natural Resources
201 South Fall Street
Carson City, Nevada 89701

Dear Elmo:

As Coordinator for Nevada's Environmental Quality Ad Hoc Committee, I would like to formally transmit to you the fruit of the Committee's labor, in the form of the finished publication.

Reflecting back to November 1969, when Senator Cliff Young requested your assistance, I am reminded of the tremendous amount of time and effort that consummated this report. However, I would be deceiving myself and others if I projected that this publication contained all of the diagnoses and medicines needed to treat the symptoms of our diseased environment. Hopefully, this report will be used as a prognostication to be improved upon in the future to construct a society which operates harmoniously with nature.

I would like to express my profound thanks to all of the committee members and the many others who worked so hard to make this report possible.

Sincerely,

Robert V. Long
Environmental Quality Coordinator

js

PREFACE

The American child raised in the 1970's will live with a truth which most of us who are his seniors have only recently grasped, and grasp only imperfectly even now. For he will know what Barbara Ward meant when she said we are all riding together on "Spaceship Earth". He will have seen the pictures taken by the Apollo astronauts, in which Earth clearly stands out amid a field of black and empty night. He will understand that our planet does not have infinite largesse to distribute to her prodigal sons.

Our supply of air is limited. Our lands have measurable bounds. Our waters may be quantified, but hardly multiplied. Everywhere--in our timberlands, in our mineral resources, in our abundance of life and food supplies--this planet, our home, can only endure a fixed exploitation capability.

If we transcend the permissible perimeters of any of the multiple facets of our ecosystem, we threaten not only that facet whose boundaries we have exceeded, but the whole balance of nature that gives Earth its life-sustaining characteristics. This dysfunctionality of over-exploitation is not alone the concern of specialists, technicians, and scientists. Any disruption in the web of life must ultimately affect all life woven into that web.

For the generation now coming to maturity and for future generations, John Donne's eloquent assertion that, "If a clod

be washed away from the shore, Europe is the less", will be recognized as more than a poetic expression. It will be a reaffirmation of a fundamental truth dramatically and undeniably proven with a small camera from a place called Tranquility Base.

While our juniors may more fully realize the oneness of man with his environment, those of us who grew up in a world where the metes of time and distance still limited our perspective must somehow grapple with the difficulties engendered by our restricted Weltanschauung. We hold in trust the power to change for those who have not reached their majority and cannot exercise that power except indirectly through our agency. Despite our imperfect comprehension, we must bear the responsibility for acting to preserve the legacy of life which distinguishes this planet from all the rest within human ken. We must make the choices and shape the policies which will guide tomorrow along constructive channels or doom it to a stillborn death on a burned-out cinder-block in space.

We cannot afford to take the responsibility we have assumed lightly. We cannot approach the problems of ecology in the cavalier fashion so often characteristic of the past. We must strive to make informed decisions, based upon the best available information and the most impartial evaluations. To do otherwise is to abandon the future to the whim and fancy of ignorance, the historical handmaiden of error. The stakes are too high to

gamble that luck will allow us to "muddle through" as we have in the past. If we are going to place our bets on human survival, and if we are going to play on our children's chips, we had best be certain we know the odds for each move we make or we walk away from the table poorer than when we approached it--and we will have impoverished our progeny in the process.

Indeed, we no longer have any excuse for violating nature's fragile equipose for short-term gain. Past societies could justify environmental rape in the name of progress, viewed from a common ground of ecological illiteracy. But the modern community has too much experience, too much evidence of the consequences of blind devotion to the"progress at any cost" psychology. The growth ethic has simply ceased to pay the dividends which once provided its raison d'etre. Expanding consumption, in one sense, has become irrelevant. For, in the United States at least, the major portion of the population has reached a point of material satiation. Additional consumption of economic goods produces few rewards to the individual or the mass. It has become an artificially stimulated and largely extraneous element in the quality of life.

In another sense, the accumulation of objects beyond the point of satiation has become a positive evil, for the exploitation of most of our resources has finite limits. Our

air and water supply, our mineral wealth, even certain animal species near extinction, are non-renewable. The more we squander these resources in the pursuit of needless personal and collective aggrandizement, the less likely is our planet going to be able to meet the necessary demands of the future. To retain traditional values as our operative rationale without assessing their consequences is to guarantee the elimination of humankind from the face of the Earth at some indeterminate but not too distant date in the future.

Thus, the problems we face can only be resolved if two conditions are met:

1. We must have adequate information on which to base our decisions; and

2. We must re-evaluate those major inarticulated premises which underlie our philosophical perspective; i.e., past values and norms must be challenged for their pragmatic survival content and, if need be, altered to provide a new ethical system.

The first ingredient is probably the less difficult to achieve. We already have the tools and technology. We have a large body of knowledge which is rapidly being assimilated into a broad-based science of ecology. For many environmental problems, we already know what to do and the question has reduced itself to the query, "Will we do what must be done?"

Here we come to the second and more difficult ingredient--

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the willingness to discard certain traditional values, replace them with others more compatible with present realities, and formulate a re-integrated system of thought incorporating the ecoethic. But if we do not come to terms with this latter imperative, our success in the former will be superficial and temporary at best--a delaying action to force the value decisions into a future time frame--and, at worst, a pallative to ease our anxieties about the impending crisis.

This report, however, does not direct itself to the more crucial question of values, since value change is necessarily an internal and deeply personal matter which cannot be resolved in print, or through data collection and analysis. Any document, however comprehensive, is an inappropriate medium for effecting individual normative change. But, as a transmitter of factual information, a report such as that contained within these covers can be most useful in laying a foundation for rational decision. It is the hope of the Ad Hoc Committee on Environmental Quality that the findings here presented may serve as points of departure in the search for ways to preserve the quality of life in Nevada for our posterity.

We are in a period of moral transition, where unanimity of view is almost impossible to achieve. Clashes over policies recommended in this report are the inevitable concomitant of divergent values. Such clashes are not to be condemned, but to be welcomed. No person or group of persons has a monopoly on

truth or reason. As John Milton stated long ago in Areopagitica,

> Where there is much desire to learn, there of necessity will be much argument, much writing, many opinions; for opinion in good men is but knowledge in the making.

The report of the Ad Hoc Committee here presented is programmatic, but not doctrinaire. It is intended to suggest, not demand. Therefore, it is better viewed as a basis for additional research into the ecological consequences of public policy-making than as a set "action" agenda for preserving Nevada's environmental heritage.

James T. Havel
Legislative Counsel Bureau
Editor

Robert V. Long
Division of Forestry
Coordinator, Governor's
Natural Resources Council

Carson City, Nevada
June 22, 1970

ACKNOWLEDGMENTS

The Ad Hoc Committee on Environmental Quality could not have issued this report without the kind assistance of numerous individuals and the cooperation of several state agencies. To all who have contributed to the contents of this publication--particularly to the members of its subcommittees--the Ad Hoc Committee expresses its deepest appreciation.

Special mention must be made of the wholehearted support of Elmo DeRicco, Director of the Department of Conservation and Natural Resources, which materially aided in the success of this project. His Department absorbed much of the financial burden of printing and mailing everything from committee minutes and press releases to final copy. Under the skillful direction of Mrs. Ethel Murphy, Administrative Secretary to Mr. DeRicco, the secretarial staff of the Department of Conservation and Natural Resources did an admirable job of preparing the manuscript for publication.

The Duplication & Photo Section of the Department of Highways' Reproduction Unit, deserve credit for the offset printing of the text in this report; just as Tom Carter's staff at the State Printing Office merits an expression of appreciation for their fine work in printing the cover and binding the report. Certainly, the Department of Highways, both for allowing use of their Reproduction Unit facilities and staff and for absorbing a disproportionate share of the cost of publication, has earned the gratitude of the Committee.

The imaginative illustration on the cover is the work of Dick Ford of the Parks Division of the Department of Conservation and Natural Resources. His artistic abilities will be appreciated by all who see the cover, but doubly so by the Committee, whose members know the effort that went into its preparation.

Appreciation is also due to the Legislative Commission of the State of Nevada, for kindly authorizing James Havel to edit the manuscript and participate in Committee deliberations. At the same time, it might be well to emphasize that this report in no way reflects the endorsement of its contents by the Legislative Commission, either collectively or individually.

To Bob Long, the Ad Hoc Committee perhaps owes its greatest debt of thanks. The seemingly insurmountable difficulties of coordinating the work of eight subcommittees and the Ad Hoc Committee--all headed by strong-willed persons-- were handled with a rare finesse by Mr. Long, who never lost his sense of purpose, patience, or his gift of gentle humor despite frequently trying conditions.

There are many others who should probably receive recognition for their contributions to the completion of this report, but space, unfortunately, does not permit a recital of exhaustive acknowledgment. Consequently, it is hoped that those unnamed will take satisfaction in knowing that their efforts were vital, and that this report itself stands as testimony to their involvement in its completion. To all who helped to

bring this report to fruition, the Ad Hoc Committee on Environmental Quality extends a sincere "Thank you."

INTRODUCTION

The Ad Hoc Committee on Environmental Quality evolved out of a request from State Senator C. Clifton Young to Elmo DeRicco, Director of the Department of Conservation and Natural Resources, and the Research Division of the Nevada Legislative Counsel Bureau in November of 1969. Senator Young had just finished reading the August-September, 1969 issue of National Wildlife, in which the National Wildlife Federation introduced its first annual Index of Environmental Quality. Recognizing that wise ecological decisions must be informed decisions, Senator Young suggested the possibility of devising an environmental quality (E.Q.) index for the State of Nevada. The purpose would be to determine where the state stood in relation to its environmental heritage and its probable environmental future, to develop a yardstick to measure future improvement or deterioration in air, water, land, and life quality in the state.

As first conceived, the project did not seem overwhelming, but as understanding grew, it was necessarily accompanied by a growth in the scope and complexity of the indexing operation. It soon became apparent that any adequate assessment must come from persons most directly involved in the appropriate operational programs dealing with environmental subject matter. Consequently, the Director of the Department of Conservation and Natural Resources appointed an Ad Hoc Committee on Environmental Quality in February, 1970. This committee was composed of various department and division heads who were responsible for the

administration of Nevada's laws pertaining to environmental questions. Robert V. Long, Staff Forester, Division of Forestry, Department of Conservation and Natural Resources, was appointed coordinator of the Ad Hoc Committee. Each member of the Ad Hoc Committee was directed to serve as the chairman of a subcommittee related to his major concern, with subcommittee membership determined by the chairman. Each subcommittee was to report to the committee by April, 1970 on its assessment of Nevada's environment and its recommendations for correcting present abuses. Reports were submitted at that time and findings were released to the Governor's Natural Resources Council on April 10th. The Governor's Natural Resources Council had earlier become interested in the E. Q. project and had agreed to act as its sponsor. In addition they confirmed the appointments made by the Director of the Department of Conservation and Natural Resources to the Environmental Quality Committee Program. On May 27, 1970 at the meeting of the Executive Committee of the Governor's Natural Resources Council, Elmo J. DeRicco, Chairman of the Governor's Natural Resources Council, appointed an Environmental Quality Index Committee. Edward C. Maw was appointed chairman, with William Hancock and Dale Bohmont as members.

Most of the material describing the present State of Nevada's environmental quality has been deleted from this report to focus more attention on needed statutory and administrative changes to preserve the Silver State's environmental heritage. However, the supporting materials are still available for inspection in the office files of each committee chairman and the public or any interested party is cordially invited to review them for greater insight into factors which led the individual subcommittees to their respective conclusions.

It might be worth mentioning at this point that the Ad Hoc Committee recognizes certain gaps in its coverage of the environmental situation in Nevada--the most noticeable being the absence of consideration given to problems of the urban environment (transit systems, housing, park development, control of outdoor advertising, aeshetics, burial of utility wires) and overpopulation. While these lapses are quite significant, they did not occur by design and, in fact, were not noticed until the final report was being drafted. Perhaps the ommissions were the result of the functional composition of the Committee, which tended to accentuate at times a narrower perspective than that necessary to encompass the omitted areas.

While the Ad Hoc Committee, in hindsight, may be justly criticized for overlooking several important aspects of Nevada's

environmental quality, it is hoped that that criticism will be tempered with the understanding that the Committee was limited in both time and resources, that it labored diligently to come up with practical solutions to extremely difficult questions and that its motives were honest and sincere, even if its vision was not always as farsighted as some would have it. The Committee feels that it has outlined a reasonable approach to the problem of preserving Nevada's environmental heritage and it hopes that the discussion stimulated by its findings will help modulate current detrimental praxis.

MEMBERSHIP OF AD HOC COMMITTEE ON ENVIRONMENTAL QUALITY

SUBCOMMITTEES

Education Subcommittee:

John R. Gamble, Chairman, Deputy Superintendent, Department of Education
Joseph J. Anderson, Director, Reference Services, Nevada State Library
Leonard Anker, Soil Conservation Service, U.S. Department of Agriculture, Carson City
John L. Artz, Extension Range Specialist, University of Nevada, Reno
William W. Campbell, Teacher, Hug High School, Reno
Jack O'Leary, Consultant in Science, Department of Education

Taxation Subcommittee:

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Chic Hecht, State Senator, Las Vegas
Coe Swobe, State Senator, Reno
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Minerals Subcommittee:

Ed Pace, Chairman, Assistant Mine Inspector
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George Allen, Kennecott Copper Corporation
T. A. Green, Anaconda Copper Corporation
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R. W. Gates, Basic Incorporated
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Mel Hyatt, U. S. Forest Service
Dr. Nellie Stark, Desert Research Institute
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James Williams, Jr., Bureau of Environmental Health, Nevada Division of Health
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Roland Westergard, State Engineer, Division of Water Resources
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Ralph Young, Soil Science, University of Nevada
Ed Naphan, Soil Conservation Service, U. S. Department of Agriculture
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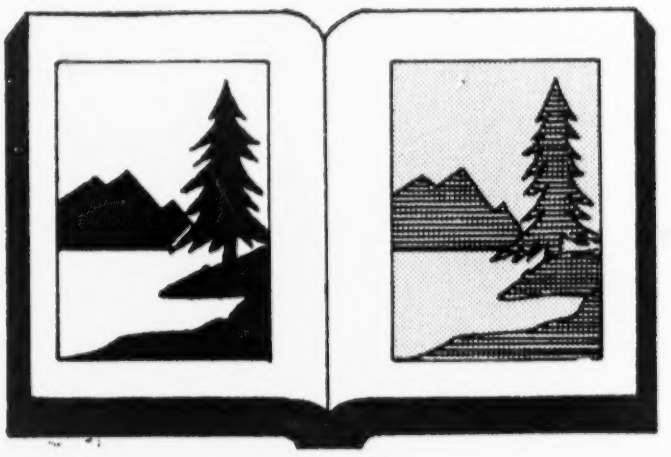
environmental education in nevada: present and future



ENVIRONMENTAL EDUCATION IN NEVADA: PRESENT AND FUTURE

A Report by the Education Sub-Committee
of the
Ad Hoc Committee on Environmental Quality

Introduction

Any survey of the environmental quality of Nevada must include a measurement of the knowledge of its people about the environment in which they live. Some indication must be obtained of public awareness of environmental interaction and the relation between individual actions and activities and changes in the environment. Environmental quality is a relative condition and can only be measured in a comparative sense.

Recognizing the need to gauge the extent of environmental education in Nevada, the Ad Hoc Committee on Environmental Quality established a special subcommittee on education, mandated to look at the quality and condition of our resources from a socio-economic perspective, rather than in the traditional isolated physical sense. The education subcommittee approached its task with the intent of assisting this and future generations to safeguard those environmental conditions that are essential to the continued orderly development of the State of Nevada. At the same time, it believed that the preservation of certain desirable conditions can be maintained, even as change occurs. In the subcommittee's view, education concerning our environment in all of its aspects is the key to future environmental quality in Nevada and is probably the one long-term objective that cannot be overlooked.

The subcommittee deemed its first necessity to ascertain, at least in a general manner, where the state is at the present time in relation to environmental education in its agencies, schools, and organizations. To measure the current status of environmental, conservation, and natural resource education, questionnaires were distributed to elementary school teachers, to agencies, and to organizations, requesting information concerning their involvement in teaching or promoting activities or programs in ecology-related fields. In addition, through personal interviews, correspondence and informal discussions, information was obtained concerning activities and programs conducted by high schools, universities and colleges, and other groups not identified in any other manner.

In most instances, conclusions drawn are quite subjective in nature; but it is firmly believed that, in spite of the informality of the system of gathering information, the subcommittee's judgments are essentially accurate and provide a clear indication of environmental education in Nevada today. The subcommittee also believes that there will be little change effected in the existing situation unless concerted effort is exerted through coordinated action between the public and private sectors at the local and the state levels.

Information Gathering

In order to obtain an accurate view of actual classroom activities in elementary schools in Nevada, a questionnaire

was mailed to elementary teachers in all public schools in the state. Approximately 1300 questionnaires were mailed and returns were received from 470 (36 percent). At the outset, it was assumed that a larger percentage of teachers involved in conservation activities would return the forms than those who had no interest. The results supported this contention, since 64 percent of the respondents (305 teachers) did conduct regular environmental activities in their classrooms.

Another significant aspect of the responses was that only 153 out of the 470 teachers replying indicated <u>any</u> training in their educational background for teaching subjects relating to environment and conservation. Perhaps this finding should be considered in conjunction with Nevada's present school law, which requires the teaching of conservation:

> 389.070 <u>Instruction in fish and game laws</u>: The fish and game laws of the State of Nevada shall be taught in the public schools of this state, with special attention placed on oral instruction for all children relative to the preservation of songbirds, fish and game.

Since there is no specification of grade level where conservation is to be taught in the public schools of this state, and the Nevada Elementary Course of Study emphasizes such study in later grades (7 and 8), isolated activities and programs may be conducted in higher grade levels.

A review of activities and programs in environmental education conducted by public high schools in the state reveals

that no courses are being taught that could be considered as environmental education per se. Ecology study is confined almost solely to units taught as a part of vocational agriculture, and, as such, it reaches a very small portion of the secondary school population. There are a few isolated instances of units of conservation, ecology, or similar topics being taught as a part of another course offering (biology, sociology, etc.).

A similar questionnaire was prepared with questions that were appropriate, and sent to some 139 federal, state and local agencies, as well as clubs and organizations. Again, there was a similar response with about 47 returns. It is interesting to note that federal and state agencies conducted significantly more programs than did local agencies, both on the basis of the number of returns and of the answers on the returns. In analyzing these returns, it was noticeable that there appeared to be considerable interest in doing more in the area of environmental education, but that there was a lack of central leadership to get anything started. It was also noted that there are a large number of people throughout the state, among both the teacher group and the agency and organization group, who have considerable knowledge and interest and would provide excellent resources for any coordinated action by organizations and school districts through the Department of Education.

Responses were also obtained from letters written to the University of Nevada Las Vegas and the Elko Community College. It is evident from these responses that while interest at these institutions varies, actual activity is just beginning to take place. Programs that emphasize environmental studies are being considered for preparation of teachers and also to meet needs that are becoming apparent in areas of career positions in environmental control.

Again, there are isolated instances of concentrated activity on the university level. Sessions Wheeler has conducted classes in conservation and environment for teachers, pre-teachers and others for many years. This program is significant from the standpoint that many of the current elementary school programs are a direct outgrowth of a teacher's attending this class.

The complete record and summaries of questionnaire returns are available in the office of the Deputy Superintendent of Public Instruction.

One or two other activities in the State of Nevada are worthy of mention:

1. For several years the Foresta Institute in Washoe Valley, under the direction of Dr. Richard Miller, has conducted summer programs for teachers and others relative to conservation and environmental studies. This has had a significant effect in the provision of isolated programs in conservation in Nevada public schools.

2. The Department of Education, under the direction of Jack O'Leary, science consultant, is in the process of preparing a teacher's guide for environmental education. It is being designed for use by elementary teachers. This is being prepared by a committee composed of members of several agencies and organizations, both from the educational community and the natural resource agency community. This guide will be prepared in a manner that will provide for the study of conservation and environment as an integrated part of the usual elementary subjects and as such will hopefully inculcate pupils with a changed and knowledgeable attitude concerning our environment. Workshops will be conducted this fall in various areas of the state, utilizing the same expertise that prepared the guide. It is planned to conduct these workshops in such a manner that the teacher can utilize almost immediately the information obtained. In this way there will be a quick return for the effort expended, as well as some opportunity for response to the workshop leaders as to the affect of the presentation.

Information gathered and reported here was certainly not considered to be the sum total of information concerning activities taking place in environmental education in Nevada. It does represent, however, a broad sampling of such activities and provides a basis upon which to draw some general conclusions and these in turn may lead to possible recommendations for future activity.

Conclusions

Any specific conclusions drawn from the information gathered are based on the premise that the questionnaire returns are a reasonably representative sample of total activity. However, the natural response bias must be taken into account in evaluating the returns of the sample. The returns seem to be proportionately greater from those who are doing something in conservation than from those who have little interest or knowledge in the area. From the positive standpoint we can make the following observations:

1. There is a small core of knowledgeable teachers who are vitally interested in environmental education.
2. This core of teachers is carrying on significant programs in their classrooms. A large amount of instructional materials has been gathered and is being used to teach elementary children about our environment.
3. There is a growing interest among school administrators and teachers to not only increase their knowledge in the area, but to provide more information for their classes.
4. Both universities are moving to provide more for their students in environmental studies. Courses have been added this year and many more are contemplated. A general interest by faculty and administration has been

exhibited by faculty meetings to determine how departments can cooperate in providing broad field majors for interested students.

5. There appears to be a broad interest by agencies and organizations. Most realize that programs should be initiated to increase awareness of environmental problems and their solution. There are also many competent people in these groups who are willing to work to meet this objective.
6. The interest and activity of the institutions of higher education indicate that there will be a comprehensive program of environmental education available in a relatively short time.
7. The program for elementary schools being developed under the Department of Education shows promise of providing some additional impetus to environmental education in our public schools.

In contrast, the subcommittee on education sees many negative aspects of our environmental education program as it stands today:

1. The efforts in our public schools are very scattered. In many instances programs revolve around one teacher in a school, and in complete isolation from the remainder of the school program.
2. Study of our environment is probably reaching less than 30 percent of our elementary school children

in any significant degree and less than half of this group (15 percent of our elementary school children) are exposed to a program that is of sufficient breadth and quality to have significant retentive effect.

3. A very small proportion of our teachers have had any specific training that would qualify them to teach anything but basic conservation or environmental topics.
4. There is little or no coordinated effort either on the state, district or school level to include environmental education as a part of the school program on a regular basis, either as a separate topic or in an integrated program.
5. Agency and organization efforts toward environmental education is isolated and programs to date involve ordinarily only a few people who are already knowledgeable about the subject.
6. University action has been slow in developing and has been confined largely to a single college.

In weighing positive and negative aspects, it appears that certain recommendations, if followed, would build on existing strong points and provide a long-term program that would eliminate many deficiencies in our environmental education program as it is presently constituted.

Recommendations

It is expected that many of the recommendations expressed

here might be implemented at least in part by increased emphasis and effort by those involved without incurring any specific additional cost by their agency, organization or themselves. It must be emphasized, however, that some of the recommendations are of such a nature that a well-planned, well financed timetable might profitably be adopted and followed in order to ensure any measure of success in implementation.

1. It is recommended that strong leadership be provided by the Department of Education for environmental education so that a coordinated, integrated program can be developed in the public and private schools. In order for this leadership to be effective, it is essential that funding be adequate to permit this person to both travel to local districts to promote and implement programs, and to bring others from the districts to central locations for workshops and inservice programs.

It is further recommended that a program be developed that is available for use by all elementary and secondary schools that is integrated into our present subject area instruction and is well articulated between elementary and secondary. There should be increased emphasis provided on the secondary level to acquaint students with career opportunities in environmental education.

2. It is recommended that an official advisory committee be established and funded on a statewide basis to advise and support statewide coordination of environmental education programs. It is essential in such an educational program that input is provided by those who are actively engaged in environmental pollution, control and preservation and use of our resources. It is vital that any educational leadership have immediate access to the new and changing procedures and policies in this field. It cannot be obtained from any better source than a regularly constituted advisory committee actively involved in Nevada problems and their solution.

3. It is recommended that a definite emphasis be placed upon increased opportunities for all Nevada youth to participate in camps and outdoor education programs. We encourage school boards and administrators to give every encouragement in the development of policies in order to promote this type of program. This need not add to the total school day, but be integrated as a part of the regular school programs. It is also recommended that all appropriate agencies and organizations emphasize this type of activity as a part of their regular work program in order to expand the study of the environment to adults and youth of all ages.

4. It is recommended that institutions of higher education further expand their efforts toward increased graduate and undergraduate, as well as technical, course offerings which will meet the expanding needs for environmental understanding in all career areas. It is further recommended that course work in environmental education or its equivalent be included as a regular part of the teacher education program in our colleges of education.
5. It is recommended that consideration be given to broadening teacher certification regulations to include preparation in environmental education--partial alternative to the appropriate major, depending upon specific course completions of candidates.
6. It is recommended that any laws enacted by the Legislature relating to environmental education avoid the mandating of prescribed courses, but should emphasize the necessity of providing a broad program of activities in our schools and that such a program is a regular planned part of the school program. Any inclusion of environmental education in school curricula should be such that it becomes a part of that curriculum, rather than an addition to it.

Some present legislation is inadequate. Where this is so, it should be repealed or strengthened. The Department of Education is ready to submit suggested drafts of such legislation.

environmental economics: tax incentives and penalties

ENVIRONMENTAL ECONOMICS: TAX INCENTIVES AND PENALTIES

A Report by the Taxation Sub-Committee
of the
Ad Hoc Committee on Environmental Quality

At the heart of most public policy issues is the question of economics--Who will pay for new governmental programs and how much? Unless these questions can be satisfactorily answered, resolution of public problems through strong governmental initiative is both unlikely and unfeasable.

Consequently, the Taxation Subcommittee recommends consideration of the following approaches to the fiscal problems connected with the preservation of Nevada's environmental heritage, in the belief that constructively designed tax measures can both stimulate anti-pollution initiatives through relief incentives and reduce active environmental pollution through appropriate tax penalties.

1. Penalties should be prescribed for the failure of any existing commercial or industrial facility to install anti-pollution devices within a reasonable time frame. A qualifying provision should be included to state that the devices must meet the existing "state of the art" at the time of procurement. As the state of the art of development of anti-pollution devices progresses, ensuring that air and water quality standards are met, the law should also provide a maximum time in which the commercial or industrial facility must install more sophisticated devices to avoid being penalized. It is further recommended that funds collected from such penalty assessments be earmarked for either state or local government for use in anti-pollution purposes.

2. Consideration should be given to increasing the cost of automotive vehicle license fees for all vehicles that do not have approved anti-pollution emission devices installed on them. This law should also require annual inspections to ensure that the devices have not been removed, and that they continue to be effective for the purpose for which installed. The revenues from such increased license fees to be earmarked for either the state or local government use in environmental quality control measures. Such measures should include, but not necessarily be limited to, the removal and final destruction of abandoned junk automobiles.

3. Consideration should be given to increasing charges for use of electrical energy above a certain prescribed level per square foot of improvements on real property. Separate classifications should be established for residential, commercial, and industrial properties. The excess fees collected by the power companies, based on this formula, should be rebated to the state or local governments for use in environmental control programs. The purpose of this proposal would be to encourage a reduction in the use of power for non-essential purposes.

4. Article 10, Section 1 of the Nevada Constitution should be amended to include "environmental contamination control" as an authorized exemption from property taxation. Such an amendment to the Constitution would permit the Legislature to enact specific laws dealing with anti-pollution matters, such as the enactment of legislation exempting the cost of developing or

installing environmental contamination control devices. The wording "environmental contamination control" is considered sufficiently broad to include authorization for a "green belt" or "open space" statute, as well as other relief measures deemed appropriate. The use of an initiative petition could expedite the implementation of this recommendation, which otherwise would have to be passed by two successive sessions of the Legislature and ratified by the public at a general election.

5. A tax incentive to encourage business and industry to install anti-pollution devices by making such devices exempt from the Sales and Use Tax Act should be considered. The subcommittee favors both the "carrot" and the "stick" approach to the curbing of pollution. The exemption suggested here represents the "carrot" part of the approach, as penalties are not appropriate under this particular statute. The Sales and Use Tax Act is a measure approved by the voters in a referendum and therefore cannot be amended without an affirmative vote of the people. Hence, any proposed change must be passed by the Legislature and referred to the electorate at the succeeding general election.

6. Consideration should be given to a tax incentive to encourage business and industry to install anti-pollution devices by making such devices exempt from Chapter 374 of the Nevada Revised Statutes (the Local School Support Tax Act). Such an exemption could become effective upon passage by the Legislature and the signature of the Governor and could provide immediate relief under the Local School Support and County/City Relief Tax Acts.

7. As a constitutional amendment is required prior to the enactment of legislation pertaining to the property tax, the Subcommittee suggested the following guidelines might be useful in amending Chapter 361 of the Nevada Revised Statutes (the Property Tax Act), should the constitutional amendment proposed in (4) supra be adopted:

a. If an exemption is provided for the installation of environmental quality control (anti-pollution) devices, the exemption should be for the full value of the anti-pollution equipment.

b. The exemption should extend indefinitely for whatever period the anti-pollution "property" continues to function effectively to meet federal or state anti-pollution standards.

c. The exemption should extend to any property, real or personal, which comes within the category of equipment or real property utilized to control or prevent pollution.

d. Any beneficial recovery of waste products for either reuse or resale from use of the anti-pollution equipment should not affect the exemption.

e. To obtain the exemption, the person, firm or corporation must obtain a certification of its effectiveness from the proper county or state organization designated by the Legislature. This organization should not be the county assessor or the Nevada Tax Commission, but should be an objective third party, such as the Health Department or Department of Conservation and Natural Resources.

f. A provision should be inserted requiring periodic inspection by the county or state agency to ensure that the anti-pollution device continues to perform effectively. The agency should have authority to withdraw the certification for property tax exemption if the device fails to meet the approved standards.

g. The pollution control facility should be erected, constructed or installed in connection with the trade or business conducted by the taxpayer on property owned or leased by said taxpayer. The taxpayer should be the owner of the trade or business that utilizes property requiring a pollution control facility to prevent or minimize pollution, or a person who, as a lessee, conducts the trade or business that operates or utilizes such property and who, by the terms of such lease or agreement, is obliged to pay the ad valorem taxes on such property.

h. The law should specify a cutoff date for the installation of anti-pollution devices if a property owner is to obtain the tax exemption. Such cutoff date should apply to existing facilities erected, constructed or installed prior to the passage of the act.

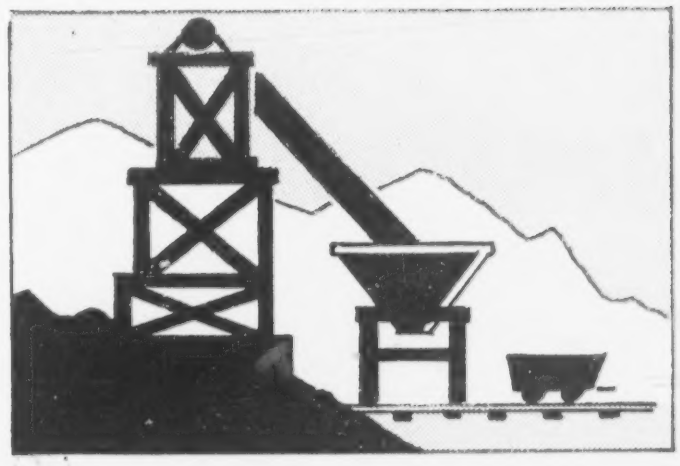
i. The law should specify that any federal incentives or grants given to a taxpayer for installation of anti-pollution equipment shall be deducted from the state property tax exemption.

j. The law should specify a method of determining the actual cost of the equipment if it is manufactured by the industry concerned.

The Subcommittee also supports the concept of tax incentives that will encourage retention of "open areas" or "green belts" with attendant penalties for subsequent subdivision or other use of such land that is not in consonance with the purpose of the tax incentive. It was the consensus of the Subcommittee that the Legislature should also consider penalties for failure to take appropriate action in the installation of anti-pollution devices within a reasonable period of time. Such provision should not be under the taxation statutes, but should be included in any new legislative proposal to improve the environmental quality of the State of Nevada.

Mr. Justice Oliver Wendell Holmes once said, "Taxes are what we pay for civilized society. . . ." They may also be what we will have to pay for the survival of our environment.

ecological aspects of mining operations in nevada



ECOLOGICAL ASPECTS OF MINING OPERATIONS IN NEVADA

A Report by the Minerals Sub-Committee
of the
Ad Hoc Committee on Environmental Quality

The mining industry began in Nevada with the discovery of the fabulous Comstock in Virginia City in 1859 and has developed steadily to its present status as the state's leading basic industry, outdistancing its nearest rival, agriculture, by three times. The total impact of the minerals industry on the economy of the state is approximately $450,000,000 and eighty percent of all freight revenues originating in Nevada comes from the minerals industry.

To evaluate the impact of the minerals industry on the environment and ecology, a sub-committee was formed from knowledgeable persons representing the mining industry and mining-related educational fields. This report reflects their findings.

1. CHURCHILL COUNTY:

   Kennametal Incorporated, Nevada Scheelite Division

   Produces: Tungsten carbide powder

   Effect on Environment: Visible results of mining, human habitation in the isolated location.

   Ecology: Little effect other than displacement of animals by the few people at the site.

2. CLARK COUNTY:

   Blue Diamond Division, The Flintkote Company

   Produces: Plaster, wallboard and gypsum lath

Effect on Environment: Located some 28 miles southwest of Las Vegas. The dust created by mining and milling creates a nuisance to the immediate area and when conditions are right, to the City of Las Vegas. Dust is innocuous, not siliceous and, in the amounts the population is subjected to, not harmful.

Ecology: A large operation with little effect on ecology other than the displacement of what few animals lived in the area by those persons who are employed by the operation.

Johns-Manville Corporation

Produces: Gypsum products

Effect on Environment: Located some 30 miles northeast of Las Vegas. Dust created by the milling and production process seldom reaches the populated areas and is usually dissipated in the surrounding desert area. A modern plant, in most respects, management indicates planning has been done to install further dust collecting apparatus. The scarring of the terrain by the mining process is the only deleterious effect on the environment.

Ecology: Displacement of animal life by the occupation of the area by those who are employed at the site.

Titanium Metals Corporation of America

Produces: Titanium ingots and sponge

Effect on Environment: Plant is located in the city of Henderson with the prevailing wind toward Las Vegas. Production of the metal uses electricity and the use of chlorine. Effluent from the stack is visible and smells. The effect is more visual than actual. However, the management of this facility, which employs some 850 persons, is currently planning ways to further reduce the amount of stack emission.

Ecology: Located in a large industrial complex, effect on ecology has already been accomplished. No doubt before the industrial area was built, there was some plant and animal life in the area.

U. S. Lime Division, The Flintkote Company, Apex Plant, Apex Quarry

Produces: Lime

Effect on Environment: Located 19 miles north of Las Vegas in a desert area near a large interstate highway, this mine (quarry) and mill creates a great deal of dust in the reduction of ore to lime. At times the wind conditions are such that the dust is blown across the highway but seldom is it a nuisance to a populated area. The dust from the plant and mine is not siliceous or dangerous. The effect of the quarry operations on the terrain is obvious, with large areas of excavated ground.

Ecology: Located in the desert, there has been little effect on the animal life or plant life other than what has been displaced by the mill and quarry.

U. S. Lime Division, The Flintkote Company, Sloan Quarry

Produces: Lime

Effect on Environment: The quarry, located at Sloan some 19 miles south of Las Vegas, produces limestone which is processed at the Henderson Plant located in the industrial complex there. The quarry produces dust which, when conditions are right, becomes a nuisance to the City of Las Vegas. The dust is not harmful. The scarring of the landscape by the mining operation is the only obvious effect on the immediate area of the mine. The plant, in the process of production, also produces dust which is highly visible to the local inhabitants. It is also at times, a nuisance to the communities in the area as far away as Las Vegas.

Ecology: No doubt the quarry has displaced plant and animal life in the immediate area.

U. S. Lime Division, The Flintkote Company, Henderson Plant

Produces: Lime

Effect on Environment: Located in the industrial complex at Henderson, the effect of the mill on the environment appears to be no more than that of normal occupation by people of any area.

3. DOUGLAS COUNTY:

The Standard Slag Company

Produces: Iron

Effect on Environment: Open pit mine and mill located some 16 miles northwest of Yerington. Dust is produced by the operation of mining machinery and the mill. It is not usually a source of concern to the populated areas some distance away. There is a large open pit mining operation that has scarred the landscape.

Ecology: The displacement of animal and plant life by the mine and mill, and also by the persons who live near the complex appear to be the most deleterious factors concerning the ecology of the area.

4. ESMERALDA COUNTY:

Foote Mineral Company

Produces: Lithium carbonate

Effect on Environment: Thousands of tons of neutral salts are precipitated annually in the Clayton Valley playa, by the operation located at Silver Peak, Nevada. The playa itself is of such a nature that it does not support vegetation. Emissions are essentially non-existent. The obvious effect on the environment is just the occupation by the Foote complex.

Ecology: The displacement of plant and animal life at the site.

Grefco Corporation

Produces: Diatomaceous Earth

Effect on Environment: Located 36 miles southeast from Mina, the operation consists of an open pit quarry or mine and a drying and packaging plant. Dust from the stack at the plant has been estimated to be .017 tons hourly. The dust from the mine is sometimes considerable. The isolated location of the operation results in little criticism from a populated area. The effect on the environment is the scarred terrain at the mine site, the roads and buildings of the complex.

Ecology: Probably the animal life in the area was never great or varied, but the occupation by the operation has no doubt displaced some of what there was.

Kollsman Mineral and Chemical Corporation

Produces: Mercury

Effect on Environment: Mine and mill are located in the Fishlake District, 75 miles west of Tonopah. Little dust or stack emission is obvious. The effect on the environment is the scarring of the terrain by the mining operation and the mill complex.

Ecology: A number of men live on the premises. The occupation of the area has displaced animal and plant life.

5. EUREKA COUNTY:

Baroid Division, National Lead Company

Produces: Barite

Effect on Environment: The Dunphy plant is located some 26 miles east of Battle Mountain. The mining and milling operation are in effect adjacent. Both operations produce dust which is not a source of hazard or nuisance and is largely dissipated in the near area. Again, the effect of the operation on the environment is the scarring of the earth by the open pit mine and by the installations of the operation.

Ecology: Plant and animal life have been displaced by occupation of the area by the persons and machinery of the complex.

Carlin Gold Mining Company

Produces: Gold and mercury

Effect on Environment: Located 20 miles northwest of Carlin, the complex consists of an open pit mine and a cyanide process mill. The major effect on the environment has been the scarring of the terrain by the operation. Dust is transmitted into the atmosphere by the operation, but is largely dissipated before it effects a populated area.

Ecology: The displacement of animal and plant life by the personnel and operations at the site constitute the greatest effect on the ecology.

Nevada Barth Corporation

Produces: Iron

Effect on Environment: Open pit mine located 14 miles southwest of Carlin, dust created by the operation is largely dissipated in the area. Effect on the environment is the scarring of the terrain by the mining operation.

Ecology: The presence of the mine has displaced plant and animal life in the area.

6. HUMBOLDT COUNTY:

Crofoot, Henry C., Jr. and Great American Industries Incorporated

Produces: Mercury

Effect on Environment: Underground mine and rotary kiln mill are located 11 miles southwest of McDermitt. Slight amounts of dust and SO_2 are released into the atmosphere by the process. Both are dissipated before they effect a populated area. The terrain has been scarred by the mine and buildings. There appears to be little other effect on the environment.

Ecology: Displacement of plant and animal life by the presence of the complex appears to be the only deleterious effect on the ecology.

Quinn River Mines and Lenway, Fred H. and Company Incorporated, (Cordero Mine)

Produces: Mercury

Effect on Environment: Located adjacent to the Crofoot property 11 miles southwest of McDermitt, this is the largest quicksilver mining-milling complex in the state. Mining is underground and milling is by crushing and kiln. Little dust or SO_2 is created by the operation. The area of the operation is scarred by the mine, roads, buildings and by the occupation by the company.

Ecology: The complex has displaced plant and animal life in the general area.

7. LANDER COUNTY

Cortez Gold Mines and Plant

Produces: Gold

Effect on Environment: Plant and open pit mine are located 32 miles south of Beowawe. Ore is processed by grinding and cyanide precipitation. Little effluent from the stacks, although some dust is created during the mining process. Dust is dissipated quickly and does not affect a populated area. The earth is scarred by the mining operation and by the catch ponds built to capture water used in the process.

Ecology: Displacement of plant and animal life by the complex of the operation.

Duval Corporation

Produces: Copper

Effect on Environment: This large open pit mine and concentrator-type mill is located 20 miles south of Battle Mountain. Large areas have been dug from the copper bearing area, leaving the earth scarred. Dust from mining and milling is largely dissipated from the air in the nearby area and does not effect the nearest populated area.

Ecology: The displacement of plant and animal life by the complex as well as the disturbance of natural game trails and herd areas constitute the most deleterious effect of this operation on the ecology.

8. LYON COUNTY

Anaconda Company

Produces: Copper

Effect on Environment: Open pit mine and concentrator-type mill located two miles west of Yerington. Dust created by the milling operation is largely controlled. Dust created by digging and haulage trucks in the pit is not great. The terrain is scarred by the extensive pit mining operation and the tailings pond blights a large area. Much money has been expended at this property to make its operation as clean as possible.

Ecology: The disruption of normal plant and animal life in the area by the mill and mine property and operation constitutes the only deleterious impact on ecology.

Nevada Cement Company

Produces: Cement (limestone)

Effect on Environment: Open pit mine is located 4 miles south of Fernley; the plant, one mile west. The limestone is ground, kiln dried and packaged at the plant. Recently a second kiln was installed and adequate dust collecting equipment has not been installed. Plant officials indicate they are waiting for definite standards before they expend large sums of money for collecting equipment. Dust created in the milling process is blown, when conditions are right, into the Fernley area and constitutes a nuisance. The effect of the mine and mill on the environment other than nuisance to the surrounding populated area, is the scarring of the terrain by the mining operation.

Ecology: Disruption of plant and animal life by the mine and mill operation.

9. MINERAL COUNTY:

Kennametal Incorporated, Nevada Scheelite Plant

Produces: Tungsten

Effect on Environment: Nevada Scheelite mill is located 45 miles southwest of Hawthorne. The impact on the environment is scarring of the earth by mining.

Ecology: Displacement of animal and plant life.

10. NYE COUNTY:

Basic Refractories Incorporated, Betty O'Neil Pit and Company Plant

Produces: Magnesite

Effect on Environment: Open pit mine and plant located at Gabbs, 33 miles north of Luning. Production of magnesite at this plant creates an extreme amount of dust from the mill and mining activity. Dust is blown

over the residential area and is, according to the local population, an extreme nuisance even though it is considered to be an innocuous type of dust. Terrain is scarred by the mining at the open pit and by the buildings and roads of the plant.

Ecology: Ecology is affected by the displacement of plant and animal life by the persons and property of the company.

11. PERSHING COUNTY:

Ranchers Exploration & Development Corporation, Big Mike Mine & Mill

Produces: Copper

Effect on Environment: Open pit mining operation located 36 miles south of Winnemucca. The mining operation produces dust which is dissipated without disturbing a residential area. The pit mine has scarred the terrain as have the roads built to service the property.

Ecology: Plant and animal life displaced.

Eagle-Picher Industries Incorporated

Produces: Diatomaceous Earth

Effect on Environment: Open pit mine located 30 miles northwest of Lovelock and mill just at the outskirts of Lovelock, eastward. The open pit mine operation produces dust which is dissipated in the desert area and does not effect a habitated site. The mill also produces a large amount of dust which is not harmful, but is a nuisance to the populated area nearby. The mine and the roads for its service scar the landscape.

Ecology: Wild and plant life have been displaced by the mine and mill operation.

12. STOREY COUNTY:

Eagle-Picher Industries Incorporated

Produces: Diatomaceous Earth

Effect on Environment: Open pit mine located 24 miles east of Sparks, the plant 17 miles east. Mining operation produces dust which is dissipated before it disturbs a residential area. The mill, located near a major highway and several businesses dedicated to tourism, produces a large amount of dust which, when wind conditions ar right, is blown over the highway and disturbs the traffic and businesses. The earth is scarred by the mine operation.

Ecology: Displacement of plant and animal life at the mine and mill sites.

13. WASHOE COUNTY:

U. S. Gypsum Company

Produces: Gypsum, wallboard and plaster products

Effect on Environment: Mill 6 miles south of Gerlach produces a large amount of dust which is transmitted into the air. The prevailing wind is from the west and usually blows the dust away from the town of Empire which is just adjacent to the west. The plant has scarred the countryside.

Ecology: Displacement of plant and animal life.

14. WHITE PINE COUNTY:

Kennecott Copper Corporation

Produces: Copper

Effect on Environment: Large open pit mining operations 1-1/2 miles southwest of Ruth. Reduction plant and smelter in the city of McGill. Dust is produced by machinery in the mining operation at the Ruth facility. This dust is minimal and largely dissipated before it disturbs a residential district. the plant emits SO_2 gas and dust in great amounts incidental to grinding and smelting. This dust and gas has been reported to have disturbed not only the nearby residential area, but as far away as Elko. The dust probably dissipates within a reasonable distance, normally, but some of the gas, no doubt, remains airborne. The vast tailings pond is powdered earth easily disturbed by the wind. This blankets the nearby town and has been a source of great concern not only to the company, but the citizens as well. The company is in the process of

attempting to stabilize the tailings pond and is planning extensive dust and gas collecting equipment installation. The earth is scarred by the vast open pit mine operation and is blighted where tailings have been deposited over the years.

Ecology: Displacement of plant and animal life by the mine and mill operations.

Conclusions:

The Minerals Sub-committee survey indicates that the majority of mining and milling in Nevada takes place in relatively remote areas, and that the prevalent pollutant is dust from these isolated sites. Little damage is seen in these instances, as the dust is largely dissipated before it affects populated places.

In some areas, such as Gabbs, Henderson, Fernley and McGill, however, dust and gas produced by the industry is a source of concern to the residents of nearby communities. It would seem that rules are necessary to control pollution by stack emission and dust, but that flexibility should be maintained in the standards employed. Rules appropriate to mines and mills in populated areas would be largely unnecessary in more isolated locations.

The scarring of the terrain throughout the state by past and present mining and milling, no doubt, has upset the ecological balance, been a starting factor in soil erosion, and rendered the areas barren.

Recommendations:

Since some parts of the state are not disturbed by dust emissions from mines and mills in their areas, while others

must be mindful of cities and populated areas affected by emissions, control should be a matter of county concern.

environmental quality as reflected by wildlife in nevada

ENVIRONMENTAL QUALITY AS REFLECTED BY WILDLIFE IN NEVADA

A Report by the Wildlife Sub-Committee
of the
Ad Hoc Committee on Environmental Quality

Game Species

The overall wildlife quality index must be rated as only fair for the State. This observation is based on the population trends of those species indigenous to Nevada which overall show a slight to moderate decline in numbers during the past ten years.

The causes for these declines are the activities and intrusions of a rapidly growing human population in game habitat and subtle changes in the environment of those species which our present system of monitoring has failed to clearly detect.

Mule deer and pheasants have shown a substantial decline in the past ten years in most areas of Nevada. The causes of the recent mule deer decline are not clearly understood, but the trend in Nevada is not unlike that experienced in other Great Basin states. With few exceptions, there has not been any significant change in habitat conditions--at least not enough to warrant the general decline in deer numbers. Subtle changes, difficult to recognize, may have occurred; however, these changes have not been recorded if this has been the case.

A similar difficulty surrounds any attempt to pinpoint the causes of the decline in pheasant. Since all pheasants are found on privately owned farm lands, their density has

always depended upon the agricultural practices followed on those lands. Undoubtedly, there have been changes in agricultural practices in recent years which have adversely affected the pheasant populations. But it has probably been a combination of changes, rather than any one obvious change that has resulted in the decline.

Our survey techniques are not refined enough to measure small changes in wildlife populations; but it is the general impression of field biologists that antelope, bighorn sheep and elk are fewer in number than they were ten years ago. Goose and sage grouse populations also show moderate decline, while the numbers of duck, doves, rabbits and hares, chukar, and quail all appear relatively stable or seem to be increasing slightly. Declines are generally attributable to increased human activity in habitat areas. However, many of the gains registered for waterfowl seem to be linked to waterfowl habitat improvement as a result of the state's habitat acquisition program.

Fish Species

Water diversions for such uses as agriculture and municipal and industrial needs have created competition for water that has substantially interfered with fish populations in by far the majority of cases. For example, Rye Patch Reservoir, which was created primarily for agricultural use, could support a food fish population that would provide significant fishing, except for the fact that it is drawn down so severely and frequently.

Water diversions on the Truckee, Carson, and Walker Rivers have caused many sections of those stream systems to have insufficient amounts of water to sustain adequate populations of fish. Practically all of the smaller waters throughout the state are diverted for irrigation purposes. In many cases, fish populations are almost totally eliminated below the points of diversion. Even Lake Mead has been adversely affected during the last ten years because of the filling of Lake Powell, which deprived Lake Mead of its normal supply of water. The result was a downward plunge in the warm water species inventory on the lake.

While water quality in Nevada seems to be degenerating somewhat, at the present time it does not appear to have too great an impact on fish species. Specific problem areas do, however, occur in connection with water pollution--notably Lake Tahoe, the Truckee and Carson Rivers, Las Vegas Wash and Lake Mead, and the Humboldt River immediately below the towns of Elko, Battle Mountain and Winnemucca.

Erosion, which adversely affects water quality, contributes silts in varying degrees to many of our waters. Incline and Third Creeks are especially significant examples, as are Bronco and Gray Creeks (all on the Truckee River watershed). Erosion from relatively unstable land is rapidly filling up Schroeder Reservoir in Lincoln County.

Chemicals and oil spills are a relatively frequent occurence in the Truckee River and generally originate either directly from commercial activities or through storm drainage

systems. Mining effluents have adversely affected Eight Mile Creek and the East Fork of the Owyhee River. The East Fork of the Carson River has also been affected in this regard.

The affects of overgrazing and leaching of fields have had their toll of fish life by silt contributions and increases in water chemistry and temperatures. Thermal pollution has shown its effect on the lower Truckee River from a power generation unit.

Habitat alteration has resulted in reduced fish population from a variety of causes. Grazing, for example, has removed the vegetative canopy over smaller streams, contributing to the increase in water temperatures and exposing the fish to increased predation. Channel work in the Truckee, Carson, and Walker River systems has had profoundly adverse effects on fish populations, simply by eliminating existing feeding areas and lowering the water level (which increases the likelihood of a rise in temperature).

Multiple Recreation Uses

Several of the multiple recreational uses have had influence on fish habitats. For example, restrictions on fishermen have interfered with their ability to take fish in waters of some of our management areas, by limiting sportsmen's activity to certain "seasons" or by preventing the use of boat fishing. Managment of water supplies for waterfowl purposes has, in some cases, been adverse to the fish populations: e.g., the Stillwater Marsh. Water sports participants have also interfered with the fishermen use at Wildhorse Reservoir. Complaints against

water skiers are common in many areas. At Lake Lahontan, numbers of people were littering the area in conjunction with their water sports, the offense being committed by both fishermen and non-fishermen.

Other Wildlife

The Nevada Fish and Game Commission has responsibility for the welfare consideration of all wildlife species. Many of these species are important for providing both shooting and aesthetic recreation. Unfortunately, to maintain our present level of inventory and management of game-classed species alone, all available manpower resources are completely utilized. With this limitation, it is probably unwise to divert funds derived from sportsmen for the use of the several game species to other classes of wildlife.

The Commission has set up a listing of rare and endangered species and is assuming their welfare as a regular portion of their assignment. The level of participation and activity, however, is subject to the restrictions mentioned above.

At this time, there is too little known on the status of non-game classes to draw a logical conclusion as to their environmental index. A terse analysis, however, would indicate a present rating of "fair." There are some definite problems, but it is not known how extensive these problems are. For example, in southern Nevada (Ash Meadows and Pahrump Valley), there are several isolated warm artesian springs. In the pools formed by these springs are found several endemic species of small fish which have attracted nationwide attention. Some of

the springs contain less than 500 fish, which constitute the entire worldwide population. Practically all of these springs are in jeopardy at the present time, due to extensive drilling and pumping systems irrigating lands in the vicinity. It will be a "touch-and-go" situation as to whether or not these species can be saved.

Another example is the extension of power lines which parallel roads into areas such as Rochester in Pershing County, the Kings River, Leonard Creek, and Dufferina areas in Humboldt County. These power lines have proven to be hazards for the golden eagle. The poles offer good observation points for the hunting eagles. Against the blue sky, rather than a normal rock outcrop vantage spot, the eagle becomes a more frequent target for the indiscriminate shooter. The upgrading of road standards through more of the back country, together with the increased use of vehicles, may create comparable hazards for other small animals, such as burrowing owls and marmots.

Indeed, more emphasis is needed to evaluate the contributions of many small wildlife species. The recreation they afford, together with their welfare requirements and protection, will require more intensive information and activity.

Wildlife species are important to the open lands in Nevada. They deserve a more formal management program than can be presently carried out through Fish and Game efforts. Their contributions to science, ecology, and recreation are significant.

Recommendations

1. The general public has little appreciation and almost

no knowledge of the basic resources which constitute the environment. This lack of knowledge has too often resulted in poor management of resources, leading to the depreciation of their quality and value. The factors basic to the life, welfare, and continued success of living plants and animals are in jeopardy.

Therefore, the Wildlife Subcommittee recommends the initiation of a comprehensive program of environmental education through the public school system, encompassing an awareness of essential environmental stewardship. The school program should promote the philosophy that conservation is everyone's concern, not merely the promotional objective of special interest groups like hunters and fishermen.

2. Competition for resource allocation and use will likely become more pronounced in the future. Yet the general public, industry, and government all share in the responsibility for the preservation of a quality environment. Hence, close coordination of plans and programs is necessary if environmental deterioration is to be avoided. Planning should include preservation of fish and wildlife refuges and natural habitats, where species can live and reproduce together with their food sources. Environmental preservation must be broad in concept and must be premised on the belief that eco-planning cannot be effective if it assumes an infinitely increasing human population.

Therefore, it is recommended that an environmental council be established, with membership drawn from industry, government,

and the general public. The council should set up criteria for the preservation of environmental values of highest quality and in the best interests of the public. Plans and programs affecting the environment would have to be acceptable under the council's criteria prior to implementation.

3. Wildlife is a product of the habitat in which it exists. If wildlife is to perpetuate itself, this habitat must be maintained in sufficient quantity and quality to meet the welfare requirements of the various species.

Therefore, it is recommended that the Fish and Game Commission be given authority to establish policies and adopt regulations necessary to the preservation of wildlife habitats, similar to its current authority to take such action to preserve, protect, manage, and restore wildlife itself.

ENVIRONMENTAL QUALITY RATING OF NEVADA SOILS

A Report by the Soil Sub-Committee
of the
Ad Hoc Committee on Environmental Quality

The overall environmental quality rating of Nevada soils is considered "very good." In the foreseeable future, it is expected to decline to "good," assuming normal population growth and no change in existing laws and regulatory measures.

The problems of most importance relate to intrusions on soil landscapes, accelerated erosion (wind and water), and sedimentation. Intrusions on soil landscapes consist of any degradation of the landscape by litter, abandoned materials, structures, construction sites, destruction of native vegetation, and erosion scars. The intrusion problem is most serious in urban areas and along highways and roads. It is also quite important in recreational areas and on rangeland and woodland soils. As population increases, it will likely become even more of a problem.

Accelerated erosion involves the detachment and transport of soil particles by water, air, or ice at rates greater than normal for soils concerned. It is usually brought about by the activities of man. Sedimentation, of course, refers to the accumulation of detrimental soil or rock-derived sediment on soils and land use facilities. Erosion and sedimentation problems are especially serious in developing urban areas and along highways and roads; and these problems, too, will probably intensify with expanding populations, unless steps are

taken to require immediate stabilization of slopes after disturbance by contractors. There is little problem on croplands, but a moderate problem does exist on rangelands and woodlands and in recreational areas. The erosion and sedimentation problems attendant upon rangelands and woodlands will undoubtedly increase as people place increasing demand on them for recreational and related uses.

Insecticides, herbicides, and defoliants are not as much of a problem in Nevada as many people might expect. This is because of the vast acreage of rangelands and woodlands that has never been treated with any chemical, with additional acreage treated only with chemicals of short residual effects. Even on croplands, the problem is considered slight because persistent pesticides have not been used in the last five or six years, except on a limited acreage of specialized crops such as alfalfa grown for seed. It is estimated that the biggest problem from pesticides is in the urban areas, where homeowners use a variety of these materials in gardening. The fact that persistent pesticides have been detected in minor amounts in the Truckee River leads one to the conclusion that the problem is not of much magnitude even in urban areas. Because of the emphasis now being placed on pesticides, including the withdrawal of the "hard" pesticides for most uses, it appears that damage to the environment from this source will diminish in the future. As population increases, problems associated with garbage disposal and decomposition products will intensify. This is especially true in and near urban areas, where the problem is of most importance

now. In the future, present croplands may be sought out to use for waste disposal purposes, thus providing potential for decomposition products to reach drainage waters.

Salinization and alkalization of soils is at the level expected in arid and semi-arid areas like Nevada. As demand for water increases and our waters are reused more times, salt problems may increase in urban areas and on croplands.

In the category of pathological organisms and other pests, weeds infest almost all soils that have been disturbed. The problem is most severe in urban areas, where little effort is made to control weeds on vacant lots and other areas not intensively used. On other soils, control measures keep the problem to moderate levels. Contamination from nutrients and waste to soils is presently centered in local and industrial areas and in limited agricultural regions.

Recommendations

Given the status of Nevada's soils as outlined above, the Soils Subcommittee believes that legislation should be developed to provide controls of soil disturbances related, but not limited, to the development of roads, subdivisions, mine development and operations, and airports and agricultural development from virgin habitat; pesticide control; and tax incentives for purposes of maintaining agricultural and undeveloped lands. Federal and State mining laws should be amended to emphasize the elimination of detrimental disturbances of

surface soil in assessment work. The stabilization of open pits, tailings, and mine dumps should be required. And restrictions should be placed on the handling of mine dumps to prevent the contamination of water supplies and agricultural lands.

Counties should be encouraged to establish vigorous controls over land use. Ordinances should be designed to minimize wind and water erosion, sedimentation, weed and pest infestation, and to preserve or improve the natural land appearance.

It might also be appropriate to provide reasonable State and Federal controls over the use of off-road vehicles, for the purpose of preventing unnecessary erosion and destruction of native values. Snowmobiles, dune buggies, and similar vehicles leaving established roads should be regulated to lessen potentially harmful environmental consequences from their abuse.

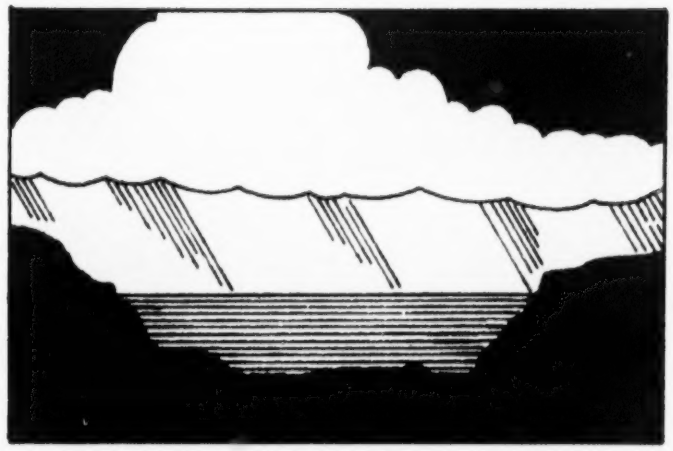
Present laws providing for the registration and regulation of the use of pesticides should be strengthened. Additional inspector personnel should be added to implement the necessary increase in surveillance and monitoring activities.

A greenbelt statute should be enacted allowing owners of farm and native lands to make contracts with the local county government to preserve such lands as open "greenbelts." In return for the retention of such lands on the tax roll in an agricultural or native land classification, the owner would agree to maintain the land at its present use for a given period of years. Such an approach, hopefully, would prevent the sale and subdivision of open lands under tax pressure

caused by "highest and best use" criteria for assessment.

Funds are needed to accelerate the state's reconnaissance soil survey and to expedite completion of a water and land use plan. Agencies concerned with soil use should be funded to develop competent interpretation and use of soil maps. Funding is also required for the increased regulatory and research activities contemplated in this report--particularly in the pesticide monitoring and studies of contaminants of soil, water, air, and crops. It is, therefore, recommended that adequate funding be provided to responsible agencies to implement the intent of the changes suggested herein.

protecting nevada's air and water resources



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PROTECTING NEVADA'S AIR AND WATER RESOURCES

A report by the Air and Water Quality Sub-Committee
of the
Ad Hoc Committee on Environmental Quality

Nevada is fortunate in that the present quality of her air is excellent and the quality of her water remains good. Yet there are some problem areas (Washoe and Clark Counties, and the Humboldt, Colorado and Carson River Basins), and the prognosis is that the overall air and water quality will deteriorate in the future unless additional controls are established.

The most significant factors affecting air and water quality are land development, transporation, sewage and solid waste disposal, recreation, industry, and mining. All of these factors are directly related to Nevada's expanding economy and increase in population and the accompanying urban and industrial development.

State Land Use Plan

The Air and Water Quality Subcommittee feels that a statewide land use plan is essential to maintain or improve the state's air and water quality. Hence, it recommends that a statewide land use plan be adopted. Such a plan should anticipate future developments in the state and determine appropriate goals and policies for Nevada. It should include codes to regulate construction, subdividing, mining, lumbering, industry, and agriculture. The plan should be prepared by an Office of Planning Coordination, which would advise and assist in the coordination of the development planning activities of

the Federal, state, local, regional, and sister state governments.

The Office of Planning Coordination should devise a comprehensive state land use plan, including, but not limited to, zoning, housing, land use, water and air quality, transportation, and recreation. It could serve as a clearinghouse for Federal grants-in-aid bearing on state development and provide technical assistance to local units of government for planning studies.

It is the opinion of the Subcommittee that the Office of Planning Coordination should be an independent agency because:

1. The functions of this Office would not receive unbiased attention if the Office was placed in an existing agency.

2. The Office would function most efficiently if it had a relatively small staff and could report directly to the Governor.

3. If the Office were required to report to a board, its activities would be hampered because boards meet infrequently and their decisions are not uncommonly postponed to subsequent meetings.

However, if the Office of Planning Cocrdination is not created by the Legislature, then an existing state agency should assume the responsibilities for developing a statewide land use plan.

Water Quality

The Subcommittee believes that urban and industrial development should be prohibited in areas with a high water table, areas subject to flooding, and lands adjacent to natural waters

(streams, lakes, etc.). Development should be prohibited or restricted on watersheds, agricultural land, mineralized land, game habitats, and areas of historical interest or scenic beauty. In determining whether land is suitable for development, consideration should be given to topography, soil profiles, the availability of water as determined by the statewide water plan, population potential, and the number of industries which can be supported in a given area without detrimentally affecting its air and water quality.

The uses of surface waters should be determined so that reasonable water quality standards can be set. In addition, more efficient methods of water storage and transportation should be initiated, including channel lining; control of diversion practices and structures; improved dam design providing multiple drawoffs so that water can be drawn from selected depths for quality control; the clearing of reservoir sites; and increased attention to environmental considerations in dam site selection. Natural waters should be protected from construction, livestock, mining, lumbering, and other potentially damaging activities. Regulations should be adopted to prohibit the altering of existing water temperatures. Minimum stream flows should be maintained to preserve the ecology of streams. Power plants and other industries should be required to control diversions and rates of release.

The maintenance of parks is critical to the preservation of water quality of adjacent streams and lakes. The Subcommittee suggests that steps be taken to control the use of

roadside rest areas, to prohibit overnight use or charge a fee for such use to help defray maintenance costs. Similarly, "use" fees could be charged for other recreational facilities to pay for needed maintenance and surveillance services.

Nevada's water pollution laws should be amended to include a definition of water pollution and a penalty provision requiring polluters to pay for damages.

The Subcommittee believes that if these recommendations are followed, Nevada will have taken a major step in the direction of preserving the quality of her scarce water resources.

Air Quality

Methods of reducing motor vehicle traffic should be investigated. For example, in urban areas consideration might be given to mass transporation systems, the routing of major highways around population centers, and the prohibition or restriction on the use of internal combustion engines in the core cities.

Automobile emissions account for more air pollution than any other single source. These emissions could be considerably lessened if new and used vehicles were required to be equipped with operational anti-smog devices. It is suggested that the Legislature authorize a mandatory motor vehicle safety inspection which would include an inspection of air pollution control equipment.

The use of recreational vehicles should be restricted. These vehicles create erosion channels, destroy vegetation,

and contribute to air pollution. Four-wheel drives, trail-bikes, snowmobiles, and other recreational transport should be prohibited from traveling on undisturbed ground or off existing roads. In this regard, wilderness areas should be designated and vehicular traffic in such areas (as along natural waterways or watersheds) prohibited. Specific areas should be assigned for the use of recreational vehicles. Organizations promoting the use of recreational vehicles (jeep clubs, snowmobile racing associations, and similar groups) should be regulated.

Nevada's existing air pollution laws should be amended to include a statement of purpose and policy similar to that contained in the Council of State Governments' Model State Air Pollution Control Act which states that,

> It is hereby declared to be the public policy of this State and the purpose of this Act to achieve and maintain such levels of air quality as will protect human health and safety, and to the greatest degree practicable, prevent injury to plan and animal life and property, foster the comfort and convenience of the people, promote the economic and social development of this State and facilitate the enjoyment of the natural attractions of this State.
>
> It is also declared that local and regional air pollution control programs are to be supported to the extent practicable as essential instruments for the securing and maintenance of appropriate levels of air quality.
>
> To these ends it is the purpose of this Act to provide for a coordinated statewide program of air pollution prevention, abatement and control; for an appropriate distribution of responsibilities among the state and local units of government; to facilitate cooperation across jurisdictional lines in dealing with problems of air

pollution not confined within single jurisdictions; and to provide a framework within which all values may be balanced in the public interest.

The legal basis for control should also be changed, to make violation of air pollution control regulations an offense punishable by established penalties, not as a nuisance. Penalty for a violation should be a gross misdemeanor or provisions for civil action should be substituted for criminal penalties. It should be made a petty misdemeanor to violate visible emission regulations for motor vehicles and open burning and incinerator ordinances. Police powers should be provided for air pollution control officers and their designated representatives.

There should be more public representation on the Air Pollution Control Advisory Council and the Air Pollution Control Hearing Board. A permit system should be established for new and old industries. The present law should be amended to provide for the exercise of emergency powers when necessary. Existing law on variances should be amended to bring it into line with the suggested approach outlined in the Model Act. There should be some requirement for the registration and review of industrial development plans to insure adequate air pollution control protection for the community.

We have no natural resources more valuable to us than the air we breathe and the water we drink. In preserving them, we are preserving ourselves.

Solid Wastes

The Subcommittee recommends the adoption of a solid waste management act for Nevada. Such an act should provide for the

planning and regulation of solid waste storage, collection, transportation, processing and disposal systems. It should require municipalities, counties, regions, and persons to submit plans for solid waste management systems in their jurisdiction, and require permits for operating processing or disposal systems. Any solid waste management program must be predicated upon the assumption of certain responsibilities and the exercise of certain powers by municipalities, counties, and regions; but, from a statewide perspective, the Board of Health should be authorized to adopt necessary rules, regulations, standards, and procedures. Penalties for violation should be included.

Manpower Requirements

The Nevada Division of Health is authorized by law to act as the State's air and water pollution control agency. In order for the Health Division to operate an effective control program, the staff and budget of the Division's Bureau of Environmental Health must be increased.

With increased staff, the Bureau would be able to provide more intensive surveillance of all inter- and intra-state streams, conduct detailed stream studies and analysis, provide inspection and consultation services for all water control facilities, and investigate and develop control techniques for all sources of water pollution (storm run-off, construction, agriculture, etc.). In addition, it could maintain surveillance of air pollution sources through monitoring stations, provide a control program to reduce emission from sources of

air pollution, adopt air quality standards for the State, and administer the air quality control regions designated by the Federal Government for Nevada. Manpower is needed to provide certification services for mechanics authorized to maintain air pollution control equipment on motor vehicles; to review plans for installations which might contribute to atmospheric pollution; and to conduct a solid waste disposal program encompassing plan review, site inspection, consultation, and regulation.

If Nevada's air and water pollution prevention programs are to be successful in preserving these aspects of our state's environmental heritage, we must be willing to make the financial committment necessary to make the goals of such programs achievable. The Subcommittee feels that, if the recommended additions and amendments to existing statutes are adopted and the new programs suggested here are initiated, the State of Nevada will have sufficient authority to control air and water pollution within her jurisdiction.

PROTECTING NEVADA'S AIR AND WATER RESOURCES: A MINORITY REPORT

Submitted by
Peter G. Morros
Division of Water Resources

The recommendations of the Air and Water Quality Subcommittee were recently submitted for consideration and amendment. The purpose of this report is to clarify the position of this member of the committee in regard to the recommendations in their present form.

It was agreed that the Subcommittee recommend a statewide land use plan and Office of Planning Coordination. However, it is felt that the Subcommittee should not make recommendations as to the functions, powers, and duties of an Office of Planning Coordination, as this is beyond the scope and purpose of the Subcommittee.

Exception by this member was placed on any recommendations concerning water availability. This is already being determined by the statewide water plan which has been funded and is in planning stages. Determination of population and industries that can be supported in a given area in regard to water availability are prime objectives of the water plan. Any recommendations concerning water availability would be a duplication of effort.

Soil profiles and topography, although a function of a statewide land use plan, should come under the responsibility of the Soils Subcommittee and Land Use Subcommittee.

There is presently a sufficient set of rules and regulations governing the supervision of design of dams in the State of Nevada. However, these rules and regulations should be strengthened with regard to clearing the reservoir sites and construction to avoid pollution of stream systems during construction, especially on small dams. All environmental aspects and effects on supply must be considered when recommending multiple drawoffs for quality control.

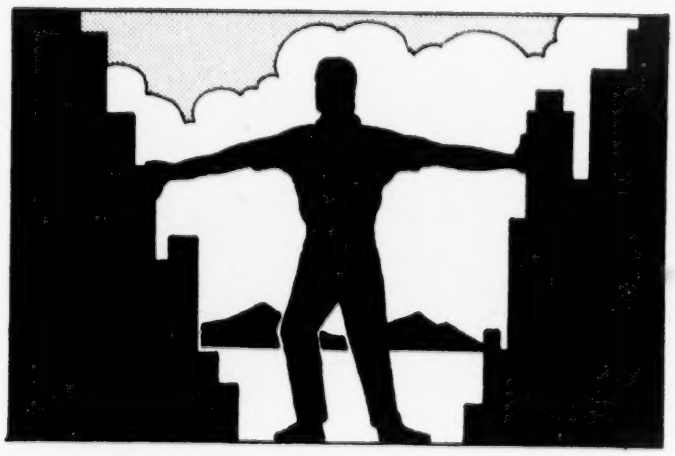
The recommendation of solid waste management legislation was strongly supported, since this is one of the major causes of water and air pollution.

Recommendations made concerning planning and zoning, wilderness areas, motorized vehicles in designated recreation areas, roadside rest areas, and "use fees" on certain facilities are again beyond the scope of the Subcommittee. The purpose of the Subcommittee was to make recommendations on the "problem areas" . . . and not to expand into areas that are questionable as sources of pollution contributing to the problem areas. All recommendations were general and none were made to correct the conditions in these specific areas.

It was also felt that more emphasis should have been made on the serious air pollution problems of areas such as the Nevada Cement Plant at Fernley and the smelter and tailings at McGill, Nevada. These are two of the major sources of manmade pollution in the state at the present time.

In summary, the report fell far short of its goal by being too general in its recommendations on legislation, and not providing a possible foundation for the solution of existing problems.

elbow room: preserving nevada's open spaces



ELBOW ROOM: PRESERVING NEVADA'S OPEN SPACES

A Report by the Land Use Sub-Committee
of the
Ad Hoc Committee on Environmental Quality

The goal of the Land Use Sub-committee was to review and analyze existing available material relating to the quantity and quality of Nevada's open space, both public and private, and to recommend ways and means of maintaining and improving the quality of land use in the state.

Generally, open space is defined as those spaces used without structural development or other space which is totally unused. In this report, "open space" means land or water surface open to the sky. The term encompasses such things as land used for livestock range, agriculture, parks, recreation, vistas and views, wildlife conservation, transportation routes, or places of landing. It includes both public and private lands--urban and non-urban.

The quality of Nevada's open space is generally good. However, there are some exceptions which should be noted. For example, open space in and around urban areas is being used for dumping purposes. Litter is being strewn along roads and trails, at primitive campsites, natural areas, and historic locations. In general, the environmental quality of Nevada's developed and undeveloped recreation areas has been abused or deteriorated by the public. The Division of Parks has too

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small a staff to adequately police and patrol recreation areas; e.g., Red Rock Canyon Recreation Lands, covering some 70,000 acres, are policed by one man and the Valley of Fire State Park, consisting of approximately 50,000 acres, is under the supervision of two men.

Highways and roads have severed and destroyed important wildlife habitat and range in some instances. County road construction on public lands has been frequently unplanned and uncontrolled, leading to the development of two, three, and sometimes four roads being scraped out of the landscape parallel to one another. Counties do not need approval or permits to construct roads on public land.

Urban sprawl into the open spaces is for the most part uncontrolled. Vegetation and wildlife habitat have been destroyed by defense installations (mainly test sites, gunnery ranges, and bombing ranges). Homestead development in checkerboard fashion on public lands has sometimes been detrimental to the total quality of the environment. Utility corridors have criss-crossed and zig-zagged Nevada's open spaces without concern for environmental impact or aesthetic concern.

Many management problems existing on the public lands administered by the Bureau of Land Management also occur on National Forest lands. Assessment work, grazing practices, and pressures for increased numbers of summer home tracts are some of the serious problems affecting land management. In addition,

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important and significant historical and archeological areas on public lands have been exploited. The quality of the landscape in and around these areas has generally deteriorated by overuse.

In the area of mining, assessment, which is work of questionable value on public lands, has generally contributed to the destruction of plant life and wildlife habitat. Mining assessment work has deteriorated the overall quality of Nevada's open spaces and excess cuts and fills have destroyed open space aesthetics and created erosion problems.

Seventy-eight percent of Nevada's croplands are inadequately treated to sustain productivity through good conservation practices. Proper treatment would not only increase crop production, but would improve wildlife habitat as well as the aesthetic value of the open space.

This brief summarization of some of the problems of land use in Nevada indicates that lands possessing water, quality vegetation, scenic values, minerals, and other natural and historic features, while representing a small percentage of the state's land area, receive the greatest competition for use. Yet many of these lands should be preserved as open spaces, for, in the total environment, the role of open space is to provide a balance between development and non-development. The function of open space is to provide breathing space, recreational outlets, green areas, and retreats of natural

beauty and scenic value. But open space is also needed to protect water supplies and watersheds. It is needed as a land reservoir or reserve, and as a resource.

The preservation of open space is an integral part of good land use. It is, in many respects, the key to the "good life." Here, the quality of open space is every bit as important as the quantity of it.

Recommendations

Believing, then, in the imperative need to preserve open spaces, the Land Use Subcommittee recommends the establishment of a land use planning agency or division responsible for total land planning in Nevada. Because of the vast increase in population and the pressures of urbanization, land and space--once considered to be more than ample and much of which seemed to be without apparent functional use--must now be considered as a limited resource. Planning for use and growth must now be applied in all areas, even those once considered remote and isolated.

In the development of a statewide land use policy, the plan should guide use, development, retention, exchanges and disposition of all lands in Nevada. Careful consideration must be given to all land uses, both existing and in the future. Special emphasis must be given to the conservation and protection of natural resources, scenic beauty, and ecological quality, if we are to maintain the refreshing character of our air, water, and land for the welfare of Nevada's citizens.

The Land Use Subcommittee recommends the adoption of an environmental bill of rights, which would set forth the overall goals and objectives of the people in promoting a livable environment in Nevada.

Laws should be enacted to permit the exchange of public and private lands where a public benefit can be gained. Examples would include exchanges made to consolidate public land holdings, develop wildlife habitats, gain access to public lands, or increase the state's recreational potential. Land exchanges should be confined to an intrastate program.

In some instances, acquisition might be preferable to exchange as a means to achieving prime public benefit. Certain recreational and wildlife habitats in Nevada, for example, are blocked from public access by private holdings. Access routes to these lands should be acquired. In any future actions where public lands are disposed, public access rights-of-way should be retained to assure the right of public ingress to adjacent public lands.

Public lands bordering lakes, reservoirs, rivers or streams should be retained for present or future open space recreation needs. To ensure conformance with statewide land use policies, local zoning and general planning criteria should be established. Urban planning for all Nevada communities should be encouraged, so that the more efficient utilization of space within urban areas would reduce or eliminate urban sprawl and provide necessary open spaces within cities.

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Legislation should be enacted to encourage the establishment and preservation of public and private outdoor recreation sites and scenic and open space preserves. Agricultural land managers should be encouraged to improve the quality of the environment through the proper use of cropland, pasture, and range lands. Careful management practices will result in long range benefits of increased crop yields, a greater abundance of wildlife, and more profitable livestock operations.

The acreage available to state agencies and political subdivisions under the Recreation and Public Purposes Act should be increased. A liberalization of the Act would allow responsible agencies to work with the Bureau of Land Management or to independently acquire, plan, develop, maintain, and operate areas of outstanding scenic, archeological, historical, geological, or scientific value.

The multiple-use concept now practiced by the Bureau of Land Management and the U.S. Forest Service should be re-evaluated. Special attention should be given to areas where the practice has lead to overall deterioration of the environment. More emphasis should be given to the segregation of uses which have an adverse affect on the landscape.

No new Federal defense installations should be encouraged in Nevada until a comprehensive plan of land use, development, management, and operation is prepared and approved by the

state land planning agency and the Governor. Such a comprehensive plan should include total land use and resource utilization analysis, and the study of proposed land use impact on vegetation, wildlife, geology, archeology, and anthropological and scientific aspects of the land contemplated for defense use.

An expansion of wildlife refuges should be encouraged and supported at the state level. Similarly, the acquisition, planning, development, operation, and mainenance of park and recreation areas should be accelerated. The value of these open spaces for recreation, study, and enjoyment cannot be overemphasized. As urban areas increase in size and population, the need for the preservation and use of outstanding natural sites will become a necessity rather than a luxury.

Railroad lands should be planned, developed, and maintained in accordance with the statewide land use plan. Also, the state should commence a program of comprehensive utility corridor planning. Plans for construction should be presented to the land use planning agency for review and approval. Plans should show aesthetic impact; consideration of construction techniques to reduce landscape destruction; impact on wildlife habitats; and consideration of archeological, geological, and historical values; watershed values; and the relationship of utility use to other proposed land uses.

An important part of the total land use plan should be a master plan for transportation. Special consideration

should be given to planning routes of travel through areas that would require extensive cuts and fills or the destruction of other ecological values. The concept of developing routes on the basis of the shortest distance between two points should be carefully weighed against the concept of "total environmental improvement and maintenance."

Mining management practices must be improved if the overall quality of the state's environment is to be safeguarded. Mining operations properly conducted would minimize the disturbance of natural and scenic values.

Disposal of waste material from mines and milling operations should be planned for and made a part of the statewide comprehensive land use plan. Planning for the use of abandoned and exhausted mines and mining areas for conversion to other uses should also be explored.

Tax relief of lands for agricultural purposes should be encouraged. Prime agricultural, farm, and ranch lands should be appraised on the basis of their current use, rather than their potential use. Tax relief for these lands should be granted so that they are maintained for open space purposes.

All legislation relating to the recreational use of Nevada's lands should be re-evaluated. An analytical review of legislation affecting rock hounding, trail bikes, flora, fauna, archeological and historical artifacts, hunting, fishing, snowmobiling, and general recreation is necessary if improved means of regulating these activities is to be realized. With

increased pressures on the lands by recreationists, enforcement of existing legislation becomes more important.

Conclusion

Nevada's lands are not so much in need of vast improvements (with, of course, certain exceptions), as they are in need of protection from slipping into any further environmental decay. Nevada enjoys the enviable position of being an open space state. Its people desire to preserve existing environmental qualities and to improve in those areas where our environmental heritage has been compromised.

To maintain a high environmental quality as our legacy to future Nevadans will require early action to improve and update laws, policies, philosophies, and practices concerning land management and use for both urban and non-urban environments.

The recommendations in this report, if implemented along with additional suggestions generated through a discussion of their merits, will do much to assure that Nevada experiences sound and orderly growth, while maintaining a quality environment. We need to act now.

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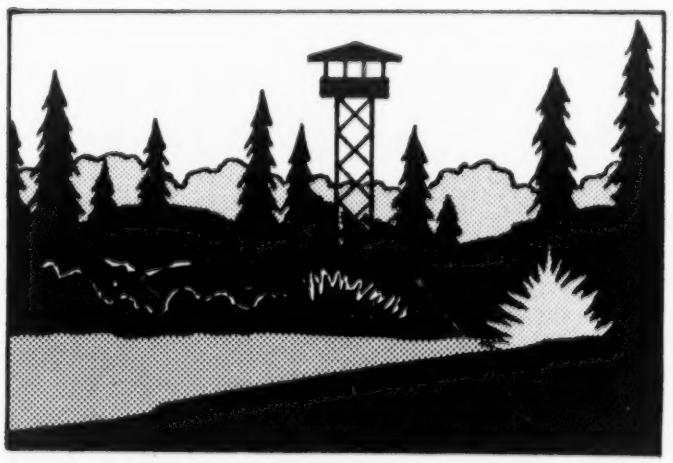
safeguarding nevada's forest heritage



SAFEGUARDING NEVADA'S FOREST HERITAGE

A Report by the Forestry Sub-Committee
of the
Ad Hoc Committee on Environmental Quality

This report is based primarily on data obtained from a forestry and range quality questionnaire sent to members of the Forestry Subcommittee. The results, which are detailed below, indicate a general consensus among subcommittee members that forest and range lands should be protected and rehabilitated because of increasing multiple use demands.

Land Use Planning

If forest management is to be encouraged and rural values are to be preserved from random development of land for residential, commercial, or other purposes inconsistent with such values, long-range land use planning is needed. Under conditions of increasing population, income, leisure time, mobility, and an extensive federal and private land checkerboard across the state, the need for such planning becomes imperative.

Action to implement land use planning is of three broad types: acquisition, regulation, and tax modification. Acquisition consists of an outright purchase of land for public use or of purchase by the public of development rights (easements). Regulation of lands in private ownership is accomplished by zoning. Tax measures are frequently manifested by present use assessment.

It is suggested that easements be used to create Auxiliary

Forest Reserves to protect Nevada's forests. The State Forester should be given authority to purchase easements or accept them as gifts.

Nevada needs to create a land use commission to establish and control four or five broad categories of zoning in the state to halt pollution and control urban sprawl. Such a program could be based on legislation similar to Hawaii's, which has been in effect since 1961, apparently with great success. A state land use commission should place all land in the state under such categories as urban, rural, agricultural, and conservation, plus, perhaps, an urban conservation category for control of stream beds and flood plains in metropolitan areas.

As a means of encouraging desired land use, property tax adjustments appear to merit consideration. When land values and property tax assessments increase, the property tax burden frequently drives taxpayers to sell their undeveloped land for subdividing or speculative purposes. Present use assessment tends to mitigate the tax burden placed on such individuals. It provides that land be assessed at its value in current use irrespective of a higher value for residential subdivision, speculation, or other purposes. Hence, it may allow landowners to maintain "greenbelts" without having to pay exorbitant taxes based on highest and best use.

Reforestation of Land

For the purposes of reforesting waste and cut-over land,

the Division of Forestry should be authorized to accept conveyances of deeds of title to land adaptable to forest growth. The donors of such land, or their heirs and assigns, should have the right to purchase it from the state at the cost of improvements plus interest within 10 years from the date of conveyance. If lands are not reconveyed after 10 years, the Division of Forestry should be permitted to dispose of them through auction to the highest bidder if such sale is deemed advisable.

The State Forester should classify all private lands as to their suitability for afforestation or reforestation. Research studies should be authorized to explore the problems of arid zone afforestation.

Whenever 500 or more trees are planted for each acre of private land for reforestation purposes, such plantation of trees should be exempted from all property taxation for a period of 15 years. Also, if the land use is changed to other than forestry, it should be subject to additional taxes (rollback taxes) in an amount equal to the difference between the assessment authorized for forestry and the taxes that would have been paid had the land been valued and taxed in the current tax year and in such of the two tax years immediately preceding as non-reforested land.

Tax Forfeited Lands

Except as ownership of particular tracts of land should be held by the state or its subdivisions for a recognized

public purpose and public access, the return of tax forfeited lands to private ownership and the tax rolls through sale should be encouraged. Tax forfeited lands should be classified as conservation or non-conservation, and conservation lands should be available to local governmental units for purchase on a priority basis. Political subdivisions holding tax forfeited lands, which fail to put such lands to public use, should be required to convey title over them to the state if the lands are classified as conservation lands, or to sell them at public auction if the lands are classified as non-conservation lands.

Cutting Practices

The present statewide concern over the intensive logging of the Redfield watersheds above Reno has pointed out that parts of Nevada's Forest Practices Act are no longer adequate. If logging is to continue in Nevada, the Act should be revised to give maximum protection to our forest resources.

Cuttings should be grouped into two basic categories--reproduction cuts and intermediate cuts. A reproduction cutting is a commercial harvest of trees which are financially or physically mature. Its primary objective is to regenerate a forest stand. An intermediate cutting is a cutting made in a stand during the rotation (prior to the reproduction cutting) to improve growing conditions and species compostion of the residual stand.

In reproduction cutting, clearcuts (the removal of the

entire stand in one cutting) should not be allowed. The establishment of natural reproduction should be encouraged under the partial shelter of seed overstory trees, during the removal of mature timber in a series of cuttings extending over a relatively short period of the rotation. The maintenance of an unevenly-aged stand, with continuous reproduction, should be encouraged by selective removal of mature timber, especially of the oldest and largest trees--either as scattered individuals or in small groups at relatively short intervals, repeated indefinitely. No trees less than 18" (diameter breast height) should be cut. Mature timber may be removed in one cut, but seed trees (marked by the Division of Forestry) should remain. At least 12 seed trees of 18 dbh or larger should be allowed to stand in any cut areas.

Intermediate cutting should encourage thinning, liberation, and salvage of trees. In thinning, a cutting is made in an immature stand to remove non-crop trees for the purpose of increasing the growth rate of the residual stand, to improve residual stem quality, to improve species composition, and to increase the yield of final harvest products. Cutting is done to lease a specified residual basal area, depending on the species and stand characteristics. In liberation cutting, a cutting is made in a young stand (not past the sapling stage) for the purpose of freeing the young growth from older trees which are overtopping. Salvage cuttings are made for the purpose of removing trees killed or damaged by various injurious agencies, such as fungi, insects, or fire.

A performance bond of not less than ten percent of the total contract price should be required by the State Forester, conditioned upon the faithful compliance with all provisions of any logging use permit issued. Bonds should also be required for timberland conversion.

Prior to the issuance of any logging or timber conversion use permits, applicants should be required to submit logging or conversion plans to the State Forester. Logging or conversion plans should include consideration of topography, timber volume, time requirements, revegetation plans, slash disposal and clean-up plans, road construction specifications, fire prevention measures to be taken, and related matters. All cutting registrations for logging operations within the Lake Tahoe Basin should be submitted by the State Forester to the Nevada Tahoe Regional Planning Agency for consideration prior to approval.

The State Board of Forestry's administrative regulations relating to stream buffers and the stabilization of disturbed areas should be enacted into statutes. The Board of Forestry should also amend its rules and regulations to strengthen its erosion control regulations.

A portion of the forest protection fund should be devoted exclusively to the rehabilitation of forest areas or for other conservation uses. Fines and fees assessed for violation of state forestry laws and regulations should be retained by the Forestry Division for use in its forest conservation program.

Before examining any proposed cutting of timber adjoining a highway, consideration should be given to the value of the trees for aesthetic, snow and wind protection, wildlife benefits, and recreational purposes. In certain areas and with some species it may be desirable to forbid cutting altogether or to permit removal of only marked trees, while in other areas all timber could be removed. The Nevada Division of Forestry or a professional forester should be consulted in tree removal.

Generally, no trees should be allowed to be cut within a buffer strip of 200 to 500 feet from lakes, campgrounds, or picnic areas. Where cutting must be done, it should be restricted to marked trees only. The areas immediately surrounding these sites should be left as much as possible in their natural state.

The construction of highways, homes, utility lines, and other improvements on forested sites cannot be accomplished without some damage to the forest cover. When such projects are anticipated, the Division of Forestry should be contacted for suggestions on minimizing damages and revegetating disturbed areas.

Solid Waste Disposal Problem

Existing garbage dump facilities are inadequate to meet present demand and too frequently are located at remote sites of difficult accessibility. As a result, the public sometimes dumps garbage and waste in unauthorized roadside areas, creating aesthetic problems (especially for a recreation state), health hazards, breeding grounds for rodents, reduced property values,

a loss of reusable minerals, and a danger to cattle and horses.

To reduce the problem of litter, it is recommended that legislation be enacted requiring one strategically located, free dumping facility to be provided for each 20,000 inhabitants of an area. Dumping grounds should be within seven to ten miles of the population centers they serve. The dumping of any garbage or waste outside of these legal dumping sites, except in cases of private dumping areas established by legal owners, should be prohibited.

Research should also be encouraged on ways of using organic waste for agricultural purposes or the improvement of Nevada's rangelands. Such a program with the Desert Research Institute is estimated to cost $16,000 per year.

Snowmobiles and Other Off-Road Motorized Vehicles

As the sport of snowmobiling increases in popularity, the need for protecting the environment from noise pollution, watershed damage, and destruction of wildlife and vegetation, becomes paramount. Therefore, it is recommended that snowmobiles be licensed and regulated in Nevada, along with other off-road vehicles which have proven damaging to the environment. License fees could be used to enforce the law and purchase easements for snowmobile and off-road vehicular use, so that resulting damages are confined to specific areas.

Archaeological Sites

Existing laws should be reviewed to determine their

adequacy in protecting archaeological sites. Where needed, stronger laws and enforcement should be initiated.

Overgrazing on Private Lands

The overgrazing of private lands should be discouraged. Since it is not feasible to directly regulate grazing on private land, some money incentives might be used to achieve desired results. The Agricultural Stabilization and Conservation Service conservation programs might be taken as models in this regard.

Restoring and Preserving Scenic Beauty

Mining companies should be required to post surety bonds to ensure the revegetation or stabilization of mine tailings. Statutes should be enacted to prevent the defacement of natural scenery. Legislative consideration should be given to problems attendant on the construction of utility poles and wires, outdoor advertising, and littering.

Recycling

The possibility of recycling is tremendous. During a recent experiment the San Francisco Examiner found that it was feasible to recycle used newspapers profitably. This same approach should be looked into as far as recycling waste paper from state and local governments.

Perhaps the Director of Conservation and Natural Resources should appoint a three man committee to review the building

codes of the state, determine the feasibility of recycling materials used by state facilities, and ways of curbing pollution emanating from state government operations.

Licensing of Tree Experts

The State Forester should be allowed to license tree experts and charge license fees. License fee revenues could be used for the rehabilitation and improvement of forest and rangelands. At the same time, licensing would help protect the public from unqualified persons posing as tree specialists who diagnose and treat dead, dying, diseased, or deformed trees.

Cooperation Between State Agencies

The recent emphasis on the environment illuminates the intricate relationships by which nature has become an interwoven web of life. Therefore, it is necessary that problems relating to nature be approached by equally cohesive planning. Hence, the Forestry Subcommittee recommends that the Fish and Game Department be placed under the jurisdiction of the Department of Conservation and Natural Resources.

It is also recommended that the various state agencies work closely together in coordinating their activities to minimize destructive environmental impact. For example, highway borrow pits could be located far enough away from the highway right-of-way to permit effective screening to develop. Pits should be sloped to allow revegetation and to minimize erosion,

and should, accordingly, be seeded with suitable herbaceous plants. Whenever practical and economically feasible, borrow pits should be excavated below ground water level for possible later use of fish and wildlife. (Representatives of the Fish and Game Department should, of course, be consulted whenever there is any question regarding the desirability of establishing water areas for fish and wildlife purposes.)

Manpower needs

To implement the suggestions in this report, the Nevada Division of Forestry will need at least four professionally trained persons added to its staff. Increased demands for supervision over logging, rangeland management, reforestation, conservation education programs, improved forest fire protection, intensive research and development (on areas like bark beetle infestations now plaguing Mt. Charleston and Lake Tahoe), and expanded nursery operations, all require staff time that is presently unavailable.

Conclusion

Trees seldom exert a greater influence upon man's environment and well-being than in regions where they do not occur naturally, or where they are difficult to establish and maintain. For this reason, Nevada residents are normally more concerned about trees than residents in less arid states.

Today, as visual, air, and noise pollution continue to increase, trees are needed even more than ever to ameliorate

conditions. Shade trees have a direct bearing on the attractiveness and property values of a community. They reflect the pride of a municipality and represent a valuable investment.

Trees are also effective in decreasing sound. Preliminary studies indicate that trees and shrubs can reduce the sound level by as much as ten decibels (equivalent to a 50 percent reduction in apparent loudness).

Air pollution problems, too, are ameliorated to a degree with the planting of trees. The trees produce oxygen and also help disperse air pollutants.

Thus, it is with good reason that Nevadans treasure their forest heritage and seek its preservation. And it is with equally good reason that action should be taken now to achieve that end; so that future generations may enjoy those shaded cathedrals of beauty which grace our land and, in green splendor, give us respite from the desert's heat.

Public Reaction

• section 2

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League of Women Voters of the United States

3511 Pueblo Way
Las Vegas, Nev. 89109

August 14, 1970

TO: Ad hoc Committee on Environmental Quality
FROM: League of Women Voters of Nevada
RE: Report on "Preserving Nevada's Environmental Heritage"

The League of Women Voters of Nevada offers its congratulations for your report, "Preserving Nevada's Environmental Heritage." We recognize the many difficulties in a first effort of this kind. Understanding that for many it was a first hard look at Nevada's environmental quality, particularly the interrelatedness of it all, we consider that the report does "lay a foundation for rational decision" in many areas. However, we quite agree with the excellent preface that we must re-think some of our traditional values if we are to do anything more than of a superficial or temporary nature.

Governor Paul Laxalt
Honorary Chairman
Grant Sawyer
Las Vegas, Nevada
Warren Monroe
Elko, Nevada
William Laub
Las Vegas, Nevada
N. Edd Miller
Reno, Nevada
Frank DiLuzio
Las Vegas, Nevada
Paul Leonard
Reno, Nevada
John Meier
Las Vegas, Nevada
Nelson Neff
Reno, Nevada

Members of the League of Women Voters have, for several years, been actively involved in study and evaluation of selected environmental issues, and on the basis of our experience and the positions we have reached, we offer specific comments on the chapters involving Environmental Education, Tax Incentives, Mining, Air and Water, and Open Space.

However, our greatest concern is that, following the printing and distribution of the "feedback supplement", there began an intensive period of consolidation of ideas and establishment of both broad and specific areas of agreement among the various committees.

(1) The Governor's Natural Resource Council should recommend the continuance of the EQ Committees, dividing the subjects of air, water, and solid waste into separate committees, and establishing a new committee to consider the problems of urban environment.

(2) The make-up of all committees should be broadened to be more representative of all areas of the State, and citizen ad hoc study groups should be invited to work closely with EQ Committees in areas of mutual concern.

(3) We recommend holding follow-up workshops in the North and South during the fall--day-long sessions to allow local governmental officials and interested individuals to

meet with the EQ Committees and develop implementation plans for specific recommendations as well as come to agreement on proposed broad policy changes.

(4) The Chairmen of the EQ Committees should continue to meet as a group to consider recommendations involving coordination and/or reorganization of state environmental programs.

(5) We suggest the Natural Resource Council conduct environmental briefings or workshops specifically for legislators to be held in early December or January prior to the opening of the Legislative session.

Our comments on specific areas of the Report are as follows:

ENVIRONMENTAL EDUCATION: We strongly agree on the need for environmental education throughout public and private schools and in our institutions of higher learning. However, we ask for a much stronger emphasis on revision of Nevada school law to change the requirement from study of fish and game laws, etc. to a study of basic concepts of ecology with development of understanding of the interrelationships of all aspects of the environment, the importance of man's effects on the environment, how decisions are made, and the importance of both individual and public decisions on the ecology.

In carrying this out, emphasis should be on an interdisciplinary curriculum development that includes the problems of urban environment.

TAX INC. NTIVES: The League consensus disagrees with the tax incentive approach. Instead we believe that the costs should be paid through absorption in production costs, adding to the price. We feel the real solution to pollution control is the passage of stringent laws and regulations, their strict enforcement, and penalties sufficient to prevent their being regarded as just an operating expense. Since under federal law, existing plants can receive tax incentive credits that virtually pay for the equipment, should the taxpayer pay for them twice? Also we might ask if the additional administrative cost of the incentive program would not increase to the average citizen the cost of pollution control?

We do not feel that any tax incentive approach should be so written as to give exemptions only if the company can effectively demonstrate a reduction in pollution and/or effectively demonstrate that the equipment installation resulted in an actual increase in overall production costs.

We would encourage further discussion and probing into the ramifications and effectiveness of other incentives and penalties mentioned although the League does not have official positions in these areas.

MINING: This is a very superficial and inadequate look at the environmental effects of mining in Nevada, particularly as it pertains to air and water pollution. Each mine or plant appears to have been allowed to do its own evaluation and some conclusions are obviously open to challenge. For example, U.S. Lime in Henderson is now under a cease and desist order because of its excessive emissions. The committee has failed altogether to consider the effect of all or any two of the emissions in combination--the synergistic effects.

Much additional work is recommended to further evaluate the total effect of mining operations on ecology. The Soils Committee and others mention the need for extensive revision of the federal and state mining laws, and we would hope that this Committee would delve into this important area.

We would disagree with the one recommendation that control should be strictly a matter of local concern. The State should adopt standards and regulations which apply statewide, with the possibility of enforcement being handled by local jurisdictions.

AIR QUALITY: The opening statement, "Nevada is fortunate in that the present quality of her air is excellent", ignores the many air pollution problems in the state. If one takes the total square miles of the state and divides the pollution accordingly, one might agree with the statement, but it reflects a false picture since the heavily populated areas do have very real air pollution problems. The report should have placed more emphasis on the problem areas: Tahoe, Clark and Washoe County, Fernley, McGill, Gabbs, etc.

The recommendations would be more easily evaluated if they were presented in a list rather than in discussion form. Basically, we agree with the recommendations given with the following additional comments:

1. We prefer civil approaches to control instead of the gross misdemeanor approach. Reason? Criminal code in Nevada requires proof of both a violation of regulations and intent to violate. The civil approach eliminates the need to prove intent, and would also allow stringent penalties without inclusion of prison terms for leaders of industry which would probably be difficult to secure.

2. The Hearing Board should be totally separated from the Advisory Council and should not include any members which have a substantial interest in the questions it must decide. (In other words, eliminate the conflict of interest.)

3. There should be variance limitations as established in the Model Act mentioned. The report would have been clearer if some of the specifics were mentioned, such as eliminating the use of the variance procedure as a means of securing exemptions or maintaining the status quo, establishing requirements for time-tables for compliance conditioned upon adherence to the timetable, and requiring periodic reviews of all variances given.

4. A permit system is essential. Emphasis should be on power to prohibit unsatisfactory methods of control, at no time relieving the industry of full responsiblity for the performance of the equipment.

5. Mechanism should be established for encouraging inter-jurisdictional (such as multi-county) approaches based on common air sheds.

6. Mention should be made of the federal control regions to be established in Nevada and the necessity for establishing very stringent controls in those areas.

WATER QUALITY: In this section we would also like to have seen an inventory of water pollution problems in Nevada, such as effluent export from the Tahoe Basin and the pollution of Vegas Wash. No mention is made of the importance of the federal aid program to assist in construction of sewage treatment facilities and the need for some State financial assistance to local governments, which would make us eligible for a greater share of federal assistance.

We recommend a comprehensive look at the water pollution statutes which need much clarification and strengthening. And while it is not strictly a matter of water quality, evaluation of the water permit procedures now in use should be undertaken.

SOLID WASTE: We strongly agree with the recommendation for a solid waste management act for Nevada. This is an area that has almost been completely neglected, as far as state responsibility and leadership, and its consideration warrants a separate committee. Means of attacking present litter problems and the handling of abandoned and junked autos should also be studied.

We quite agree that in order to operate effective controls for air, water, and solid waste pollution, the staff and budget of the Bureau of Environmental Health (or any subsequent agency designated to be the authority) must be greatly increased.

OPEN SPACE: We have received copies of the full 43-page report of the Open Space Committee and feel that much more of it should have been included in the Summary Report. For instance, the summary of major non-urban land uses, by acres and percentage of total land area, is quite informative and tells us that we are fortunate in having ample open space. How we plan for its future use will certainly be all-important, and we strongly support the recommendation for development of a state-wide land use policy, including local zoning and general planning criteria.

Our study and support of a high-quality State Park System leads us to agree that increased acreage should be available to state agencies and political subdivisions under the Recreation and Public Purposes Act. Demands from both Nevadans and tourists for more outdoor recreation opportunities calls for an acceleration of acquisition and development of park and recreation areas throughout the State.

We were impressed with the comprehensive "Plan for Action" in the original report, and wish that in the Summary the specific recommendations had been presented by number and in outline form for easier reading. It is particularly important that this committee expand its membership and develop specific legislation related to many of the recommendations; planners, architects, engineers and other interested citizens should be encouraged to participate as it will take much "grass roots support" to successfully achieve environmental quality controls in regard to our valuable open space.

Thank you so much for the opportunity to make the above comments. Members of the League in Nevada look forward to working with other interested groups and individuals to improve and maintain Nevada's environmental quality.

Sincerely,

/s/ Jean Ford

(Mrs.) Jean Ford, State President

/s/ Daisy Talvitie

(Mrs.) Daisy Talvitie, Chairman,
Environmental Quality Committee

NEVADA OPEN SPACES COUNCIL, INC.
709 MALLARD SOUTH
LAS VEGAS, NEVADA 89107

RECEIVED
LEGISLATIVE COUNSEL BUREAU
AUG 17 1970
ROUTE: AUDIT DIVISION ( )
RESEARCH DIVISION ( )
LEGAL DIVISION ( )

Aug. 14, 1970

James T. Havel, Deputy Director,
Resource Division,
Legislative Council Bureau,
Carson City, Nev.

Dear Mr. Havel:

As you probably know, the Nevada Open Spaces Council was asked to help set up and coordinate task forces on air, land use and management, water, pesticides, solid waste, population, wildlife, fish and endangered species and conservation education following the Spring Conference here on Nevada's EQ.

These Task Forces were organized and placed under the direction of well qualified chairmen. Their goals were designated as identifying specific legislation to be introduced at the next session of the legislature. They also were to respond to the Governor's Ad Hoc Committee report on Environmental Quality.

Some of these Task Forces now are in the process of responding. You should have the replies in a day or two. In addition, Dr. Lester Burgwardt, chairman of the Conservation Education Task Force, reported the education section of your report meets with their full approval and they have nothing to add.

I am enclosing the recommendations of our Population Task Force headed by Dr. Albert C. Johns, UNLV. We consider the relationship of Nevada's EQ to population to be of major importance. Population is crucial to any long-range planning for quality environment. This may well be the most significant contribution we can make to the Governor's Natural Resources Committee since this particular aspect of the environmental problem was not covered by your study.

We recommend you give the subject serious consideration for inclusion in your supplementary report.

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Sincerely yours,
Bill Vincent,
Nevada Open Spaces Council.

POPULATION COMMITTEE
NEVADA OPEN SPACES COUNCIL

Premises:

1) There is a definite relation between increased pollution of the earth's environment and the explosion of world population.

2) The rate of increased pollution is greater than the rate of increased population.

3) We must not only find means to control the pollution of the environment, but also find means to control the growth of world population.

4) While the State of Nevada has vast open spaces, it cannot be presumed that the land can be used without control of resources and population. The characteristic of our soil and climate indicates that the population of the state must be limited.

5) Limitation or control of population growth cannot be thought of in terms of low income families alone. In fact, it can be easily proven that higher income groups are responsible for more pollution of the environment than lower income groups.

6) Any efforts to influence population growth must be aimed at the total population. Every adult in the community must be concerned about the state and community.

7) Efforts must be made by the various governmental agencies, private organizations, and individuals to promote legislation and organized private efforts to educate the people of Nevada to solve the problem of population explosion in the state.

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The following proposals are suggested for Council support and action:

1) That the Nevada Legislature re-examine the budget allowance for Family Planning Clinics in the state. The present budget is low, consequently the work of the clinic is limited, not only by a scarcity of facilities and personnel, but by lack of funds for effective educational programs through the public media and the distribution of literature.

    a) The concern up to the present time has been the control of population in lower income groups.

b) An effective educational program must be aimed at the entire community.

c) Contents of the educational program need not be overly concerned with the techniques of family planning, but with the need and advisability of family planning.

2) That the Council urge the Legislature to take appropriate action to support the efforts of the State Education Department to effectively develop and use a sex education program in all schools, which will not only provide basic hygienic knowledge but an understanding of good family relations and need for understanding the relationship between conservation and family planning.

3) That the University of Nevada, both in Reno and Las Vegas, establish a required course in Ecology. Such a course should include information about population problems and the means to control population as well as the relation between population and the conservation of the environment.

4) That the Clark County School District be urged to establish a required course for all students in the junior and senior high schools on Ecology, Conservation and World Population.

5) That the Population Committee of the Nevada Open Spaces Council urge the formation and development of a chapter for Clark County of the Planned Parenthood World Population Association.

6) That the Nevada State Legislature pass legislation which would free the individual woman and her physician from an interference in their individual rights regarding unwanted pregnancies. In the final analysis, such matters are not, properly speaking, the concern of the political community, but are the concern of the family and the physician.

These are long range goals:

7) That a law be enacted by the State Legislature which would make the fathering of illegitimate children a felony, punishable by severe fine; for example, any man who fathers more than one illegitimate child will be fined $1,000 for the second offense. In case of further illegitimate pregnancies, he will be sterilized.

8) The Council should go on record to eventually propose to the Federal Government that any man who fathers more than two children will not receive additional exemption on his income tax, but instead will suffer the penalty of losing all exemptions.

3900 Acapulco
Las Vegas, Nevada 89109

TO: Ad Hoc Committee on Environmental Quality

FROM: Daisy J. Talvitie, Chairman, Nevada Open Spaces Council, Air Pollution Task Force

RE: Air and Water Quality Sub-committee report on Protecting Nevada's Air Resources

The Nevada Open Spaces Council Air Pollution Task Force is a committee of citizens which includes several legislators, scientists, representatives of organizations such as the P.T.A., the League of Women Voters, T.B. and Respiratory Disease Association, conservation groups, and Health Agencies. We have been meeting weekly for several months developing recommendations for specific changes in Nevada statutes relating to air pollution control and a bill based on our recommendations is now being drafted by the Legislative Counsel. We are pleased to find that the Task Force is in basic agreement with the recommendations of the Air and Water Quality Sub-Committee.

The Task Force has recognized from its beginning that present Nevada statutes are totally inadequate. We have, therefore, used as a basis for our discussion the Model Act referred to in the report of the Air and Water Quality Sub-Committee, recommendations of the National Air Pollution Control Administration, interviews with control officers in the State, statutes of other states, and recommendations of the League of

Women Voters and conservation groups. It has been the feeling of the Task Force that a new air pollution statute should have as its primary purpose the strengthening of the State Air Pollution Control program concurrently with the strengthening of local enforcement programs. In addition to tne recommendations made by the Air and Water Quality Sub-Committee, the Task Force is recommending statutory changes which would include:

1. Legal definitions of terms such as air pollution.

2. Establishing air pollution control through civil procedures.

3. Removing some of the present restrictions on powers of the State Agency by listing those powers granted. Such powers should be sufficient to enable the State Agency to fulfill the responsibility with which it is charged.

4. Revision of present enforcement procedures to more closely approach those included in the Model Act.

5. Establishment of a schedule of civil penalties for minor offenses which could be paid by the offender if he did not wish to have a court hearing while establishing more stringent penalties which could be levied by the Court for major violations.

6. Separation of the Hearing Board from the Advisory Council with established Hearing Board procedures which would allow review of the Hearing Board decisions by the Court to be based on the record rather than the present de novo review.

7. Revision of present statutory provisions regarding local control programs by differentiating between heavily populated areas, areas designated Federal Control Regions, and other areas of the

State with emphasis upon both state and local enforcement authority, interlocal and cooperative agreements, and regional approaches based on air-sheds.

The Task Force should soon be receiving from the Legislative Counsel Bureau the rough draft of the proposed statute. At that time we would appreciate comments from the Air and Water Quality Sub-Committee.

Nevada Open Spaces Council

Task Force
On
Land Use and Management

4224 Chatham Circle, #2
Las Vegas, Nevada 89109
August 14, 1970

Mr. Eric R. Cronkhite, Chairman
Open Space-Land Use Subcommittee
Room 221 Nye Building
201 S. Fall Street
Carson City, Nevada 89701

Dear Eric:

Thanks very much for the opportunity we have had to review and comment upon the report of the Open Space-Land Use Subcommittee which provides an analysis of the quality of open space in Nevada. Those of the Task Force on Land Use and Management that were able to review the report were indeed impressed with the comprehensive and in-depth survey of the problems and suggested remedial actions that your committee has outlined. We have found no disagreement with any of the paragraphs in the report, but have some comments on particular items of Responsible Action you propose.

Item 6 is particularly gratifying to us, representing as it does a turn away from one of the most serious forms of exploitation possible in a water-starved desert state like Nevada. We feel that the principal of graded zoning about urban centers might have been mentioned in one of the other items, thus allowing for gradual transition from high density urban development through rural, scenic, back country zoning and ultimately to wilderness where appropriate. It would have been good to assure public ownership of suitable buffer strips about such areas as wilderness and scenic dedicated lands in order to prevent erosion of environmental values.

Item 9 might have been worded to require urban planning for all Nevada communities, or at least encouragement should involve financial penalties to communities who do not generate an accepted plan.

Item 12 might refer to the application of the principle of "best uses" or "compatible uses".

Item 17 is particularly appropriate. A state licensing agency should be required to review all proposals for utility plants and transmission lines in terms of their environmental impact. Careful consideration should be given to state regulation of advertising and price structure for electric power that encourages consumption at the expense of the environment.

Item 19 might have included requirements for restoration of lands where deemed possible, prior to licensing of mineral extractions. Such commercial projects should involve leasing for resource extraction only, with other resources remaining in public ownership.

Item 1 is very necessary, but conflicts must be ironed out between planning agencies that may be considering other aspects of the environment. Furthermore, programs and plans of various government bureaus and agencies may conflict with environmental goals promulgated by others. It would seem that an overall Council on Environmental Quality (or such) would be desirable to review reports that should be required of each new project outlining in detail the potential impact of the project on the environment. Such an agency would also subject to public scrutiny State applications for federal lands, the state being required to account for the proposed uses or disposition of the lands in question. Cross reference with item 10.

It would be desirable to state a general philosophy embracing a land-use ethic that recognizes natural ecosystems of all types and in maximum quantity as valuable in their own right for the better balance between man and his environment, and the general acknowledgment that disturbance of such ecosystems must be justified in terms of benefit to society, rather than just a short term benefit to the exploiter; and that such exploitation, when it occurs, must minimize impact to an ecosystem or in the process of exploitation convert it to a new system of maximum possible aesthetic value to society. Here, a recognition of the dynamics involved in the interface between various resource policies is needed and that between population and environmental resources. For example, between water availability and land use on the one hand and between population and both water and land uses on the other. An evolution in thinking should be encouraged that recognizes other measures of value than simply gross national (or state) product or growth.

The implementation of the ideas expressed by the various subcommittees must be converted into legislation, which perhaps will require a legislative committee to integrate the various bills and steer them through the legislature.

It appears that such action as is recommended by this report is none too soon in its implementation. The Congress is considering now bills that will offer assistance for statewide land use planning and will impose penalties for failure to generate satisfactory plans. We of the Task Force on Land Use and Management are rather proud that Nevada is taking an early lead in assuring quality open spaces for its citizens and visitors. We look forward to equal pride in the final legislation that implements these modern concepts.

Sincerely yours,

Howard Booth, Committee Member
(for) Roy Evans, Chairman

COOPERATIVE EXTENSION SERVICE
MAX C. FLEISCHMANN COLLEGE
OF AGRICULTURE
RENO, NEVADA 89507

ANIMAL SCIENCE DIVISION
BREEDING—NUTRITION
PHYSIOLOGY—VETERINARY MEDICINE

July 28, 1970

MEMORANDUM

TO: Dean Dale W. Bohmont

FROM: Earl L. Drake, D. V. M.
Charles Speth

SUBJECT: Recommendations for the Governor's Committee on Preserving Nevada's Environmental Heritage

Food and shelter are basic necessities for man's existence. Man has been adjusting to his environment for 200,000 years, but these basics are still necessary for life.

Man is unique from all other organisms in that he can build tradition and culture and pass it on to other generations. We in Agriculture feel that it is of utmost importance that we plan ahead for protected areas of production of food and shelter. This, we feel, can be done by well planned zoning for the future.

The livestock feedlot industries are one of agriculture's most rapidly-growing segments. Intensifying of these industries expands nuisances such as dust, odors, flies, feathers, and noise. At the present time this is not a problem in Nevada, but the industry can project what its problems will be from the experience of other states.

Planning and protection of areas specified for this type of production will stimulate large investors into these areas. Methods of utilization and disposal of organic waste must be a prerequisite of lot location to be considered from the standpoint of water pollution and air pollution. This planning must

be done in cooperation with the livestock industry and through agencies that are knowledgeable.

Plans for agriculture might best be made by a Dean of Agriculture's task force and representatives of the industry.

Human pollutants should be considered as possible detriments to livestock and crop production. For example, lead from automobiles and bacteria from human excrement could contaminate food and building materials.

Earl L Drake

EARL L. DRAKE, B.S., D.V.M.
EXTENSION VETERINARIAN

charles F Speth

CHARLES F. SPETH
ASSISTANT ANIMAL
NUTRITIONIST

:b

COOPERATIVE EXTENSION SERVICE
MAX C. FLEISCHMANN COLLEGE
OF AGRICULTURE
RENO, NEVADA 89507

September 1, 1970

Mr. Robert V. Long
Staff Forester
Division of Forestry
Carson City, Nevada

Dear Mr. Long:

I have just finished reading the report "Preserving Nevada's Enviromental Heritage" and have the following comments.

It appears that the entire section on Mining pays very little attention to the dust problem from mills and mines. They do not touch the operation of gravel mines. I formerlylived in Las Vegas and too many times seen the great cloud of dust that was created by the gravel mines. Sure the dust did dissipate, but did it not add to the air pollution? Just because it could not be seen any longer does this mean it has no effect? You do not see Carbon Monoxide either.

One other thing on soil erosion. In certain places the over-grazing of the land creates a situation that causes much land erosion. An example is Schroeder Reservoir in Beaver Dam State Park. I would expect there are other places similar to Schroeder.

Sincerely,

Melvin P. Miller
County Agent - In Charge

MPM/lc
cc: L. Clair Christensen

UNIVERSITY OF NEVADA
RENO LAS VEGAS

MAX C. FLEISCHMANN
COLLEGE OF AGRICULTURE
RENO CAMPUS 89507

PLANT, SOIL
AND
WATER SCIENCE DIVISION

July 29, 1970

Mr. Robert V. Long
Environmental Quality Coordinator
Div. of Forestry, Dept. of Conservation
and Natural Resources
201 South Fall Street
Carson City, Nevada 89701

Dear Mr. Long:

I have these comments and additional suggestions on the report "Preserving Nevada's Environmental Heritage":

(1) This excellent report will be most useful if we immediately implement public and private environmental management programs. Value systems will be established, problems defined, and solutions found to the degree we actually attempt land use and environmental management.

(2) Land resource inventory maps and interpretations (e.g., soil maps) in useable forms are needed for the entire state. In any rush to get these, we should not delude ourselves with broad-brush, "generalized" maps based on little or no data. There is a very real minimum level of information needed for solving real land use and planning problems. This can be had by concentrating on priority areas, defining data needs, and getting going now on mapping programs.

(3) We need explicit statements of problems and resource data needs in advance of mapping or interpretive studies of resource maps, such as soil maps. This should be a cooperative effort between the managers or planners and resource evaluators. Critical data will not be collected unless its need is recognized, especially in rapid reconnaissance surveys. I speak from my experiences with the Nevada Reconnaissance Soil Survey.

(4) The most significant implication of this report is that our environmental problems are immediately generated by the growing urban environment, or are periferal effects of them. It is perhaps prophetic that the authors and contributors to this report, most of whom live in urban areas, are paid by urban taxes or sales, and might be expected to be concerned with urban-generated problems omitted specific consideration of the urban phenomena "...not...by design"!!

Respectfully submitted,

Frederick F. Peterson

Frederick F. Peterson
Associate Professor and
Associate Soil Scientist

FFP:nb

August 13, 1970

Mr. James T. Havel
Legislative Counsel Bureau Research Division
Legislative Building
401 So. Carson Street
Carson City, Nevada 89701

Dear Mr. Havel:

I would like to submit the following comments on the publication "Preserving Nevada's Environmental Heritage."

Wildlife Quality. Nevada is approximately 86 percent federal land, from which wildlife obtain a majority of their feed. There are federal fish hatcheries, stream planting programs, and agency plans and management areas. Add to this federal matching funds and it is difficult to justify license price differentials between residents and non-residents.

Flood Plain Zoning. State and federal projects are completed or proposed on Nevada rivers and streams. Flood control benefits of these projects are subsidies to land owners in project areas. Lands above dam sites increase in value for recreation, while lands below dams become valuable for housing or other developments due to flood protection. If floods greater than project design occur, people incurring property damage often seek state and/or federal relief aid. In effect, the public provides a double subsidy to land owners in project areas. Consequently, it is suggested that flood plain zoning or taxation be used to obviate subsidies falling to certain individuals.

Ecological Aspects of Mining. The age of accountability in resource use is dawning and privileged positions are waning. Granted the minerals industry plays an important

part in Nevada's economy. But it has been well remunerated in the past for its activities and is so at present, as well as having the advantage of archaic mining laws which no longer fit present conditions. The composition of the Minerals Sub-Committee throws doubt on its objectivity. There has been no expert testimony given on ecological effects of mining, or on mineral pollution of air and ground or surface water.

Very truly yours,

Giles T. Rafsnider

Giles T. Rafsnider

August 12, 1970

Governor's Natural Resources Council

Dear Sirs,

It is very encouraging to see that an attempt is being made to assess the quality of our environment from an ecological viewpoint. I would offer some ideas to broaden the concepts of of ecological effects of mining operations (pp 19-30 of this report).

For each mine site, "Effects on the (human) Environment" are discussed in some detail, but under "Ecology" only "displacement of plants and animals in the area of the mine" is usually noted. This needs expanding because:

1) The plants and animals which formerly inhabited the area, since they are usually not able to move elsewhere to live, are effectively destroyed rather than "displaced",

2) Farther from the mines, direct effects of the mining operations such as air and water pollution, erosion, and disruption of game trails (briefly mentioned in the report) will drastically affect the plants and animals, and

3) There are many indirect effects on the functioning of the whole ecosystem. For one example, mine dust settling on plants will decrease photosynthesis, resulting in less food production by the plants, food shortage for all the life forms which depend on the plants, (of which there are many, even in the desert), and consequent decrease in the number and variety of life forms the ecosystem is able to support.

Every action, at a mine site or elsewhere, has effects on the entire ecology. Few effects are known in detail and even fewer have been measured. We need more knowledge to

assess the effects of our actions on our environment, and, perhaps more importantly, we need to apply the practical wisdom which tells us simply to limit the magnitude of these actions.

Sincerely,

/S/ Karen G. Jensen

Karen G. Jensen
(M.A. Environmental Biology)

DESERT RESEARCH INSTITUTE

University of Nevada System

Laboratory of Desert Biology

Water Resources Building
Reno, Nevada 89507
Phone: (702) 784-6744

July 31, 1970

Bob Long
Staff Forester.
Division of Forestry
Department of Conservation
and Natural Resources
Nye Building
Carson City, Nevada 89701

Dear Bob:

After studying "Preserving Nevada's Environmental Heritage", I feel that you should be congratulated for pulling together the varied opinions of the many subcommittees. The preliminary report is a sound contribution to the development of a strong environmental quality program in Nevada.

At the July 29 meeting, I judged that the fate of this report is somewhat uncertain. If I am not too presumptuous, I would like to offer the following suggestions:

1. The Governor's Natural Resources Council or a subcommittee of their choosing, should select from each of the subcommittee reports 1-5 major environmental problems which are either widespread in the State, or affect many people.

2. These could be broken down into those problems which can be solved in part or whole now, and those for which we have no solution.

3. For those problems which can be solved by known and tested methods, the needed additional budgeting should be recommended (for 1 or several State Agencies which are directly involved and are willing to work in close cooperation) and the appropriate legislation put forward in the form of carefully worded bills.

4. For those problems which cannot be readily solved, I would like to see a priority list for research needs established which would include the types of research needed, the State agencies (University of Nevada, Reno, Las Vegas, or DRI, or other) which are interested in tackling these problems, and a budgetary breakdown. If this were done soon, it might be still included in the next biennium budget requests. If not, it may be 2 or more years before there are funds available. State and Federal cooperative research programs might also be worked out.

I would also like to see the State license persons who serve as consulting Field or Environmental Ecologists. Developers are eager to get hold of some ambitious character, with a B.S. or M.S. in anything who is willing to pose as an ecologist, and much unsound advise is given under such conditions. I would like to see the State require at least a masters' degree in Environmental Ecology, Forestry, etc. for persons wishing to serve as consultants, and, at least four years of active field experience. This is a problem of wide concern among professionals. I have been asked to write a paper on this subject, although I may not have time to do so.

I also feel that much could be gained by pooling our knowledge. The University System has scientists in all fields who are already State servants and could and should be willing to provide professional advice to the State in any area where environmental problems occur. Such people need not receive additional pay for advising the State, and combined they offer a considerable wealth of knowledge and experience. I would like to see an advisory council composed of professionals who are willing to provide advice to State agencies on specific problems as they arise.

Also, I think a meeting once a year of persons working on environmental problems in Nevada could be useful as a means of keeping in touch and avoiding duplication.

These are just suggestions to hash over.

Sincerely yours,

/s/ N. Stark
N. Stark
Research Associate

NS: bas

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
324 25th Street
Ogden, Utah 84401

1540 (3000)

AUG 13 1970

Mr. George Zappettini
State Forester
Division of Forestry
201 South Fall Street
Carson City, Nevada 89701

Dear George:

Reference is made to your letter of August 3.

As a member of the Environmental Quality Forestry Subcommittee, Mel Hyatt appreciates the opportunity to provide his comments on the Nevada Environmental Quality Report that we received a short time ago.

We agree with you that fire control deserves some discussion in the report. Perhaps it could be treated under a heading of "wildland fire protection" or "fire protection", or some similar heading.

Emphasis should be put on the importance of fire protection in maintaining the quality of Nevada's environment. Without it, many of the measures proposed for environmental improvement will be to no avail. Adequate fire protection is basic to resource management.

The effect that wildfire has on air and water pollution could also be discussed.

This may be the opportunity to stress the need to extend fire protection to the many thousands of acres of private watershed lands in Nevada that are now receiving no organized fire protection.

We would also like to comment on a statement made on page 71 of the report under Cutting Practices. In the discussion of reproduction cutting, the statement is made that "No trees less than 18 (diameter breast height) should be cut." Many trees of this size are overmature, suppressed, diseased, of poor form, mechanically damaged, or may have some other detrimental characteristic that dictates they should be removed from the stand. This 18-inch limitation should be modified. Otherwise, you are putting sideboards on your cutting practice that preclude good management.

DIVISION OF FORESTRY
State of Nevada, Carson City, Nev.
RECEIVED
AUG 31 1970
ANS'D

136

Also on page 71, in the third sentence of the last paragraph, we wonder if the word lease was intended to be used here. Perhaps this is a typographical error. At any rate, this word obscures the meaning of the sentence.

One other comment on the forestry report. We note that Federal lands are not discussed. Perhaps it was the intent of the report writers not to discuss environmental practices on Federal lands. However, we note that the reports of some of the other subcommittees make recommendations relating to Federal lands; i.e., the report by the Land Use Subcommittee. Also, the forestry and range quality questionnaire that was submitted by members of the forestry subcommittee included inputs for Federal lands.

We hope our comments will be of some value for you.

Sincerely,

Karl W. Spelman

for
R. S. MCBRIDE
Assistant Regional Forester
Division of Fire Control and
State and Private Forestry

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
Toiyabe National Forest
P. O. Box 1331
Reno, Nevada 89504

August 14, 1970

Mr. George Zappettini
State Forester
Nevada Division of Forestry
Carson City, Nevada 89701

Dear George:

We have reviewed the Forestry section of the Preserving Nevada's Environmental Heritage. We feel the people who prepared this report certainly did a good job overall. Our comments follow:

1. On page 69 under reforestation of land, we wonder about the advisability of the state selling land once it has been reforested without including covenants restricting future land use.

2. The paragraph concerning reproduction cutting could probably be clarified by separating standards or requirements for selective cutting by individual tree removal or removal of small groups of trees and for shelterwood cutting. As now written, there is conflict.

3. The section on Recycling, pages 75 and 75, is not clear from the standpoint of building codes relative to recycling materials used by state facilities. Does this include only paper products or does it include all products such as materials generated by disposal of buildings?

4. We certainly agree that fire control should have been included. How about a section on protection which would include fire control, insects and disease and vandalism?

These comments are intented to be constructive. We hope they will be of assistance to you.

Sincerely,

EDWARD C. MAW
Forest Supervisor

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
HUMBOLDT NATIONAL FOREST
976 Mountain City Highway
Elko, Nevada 89801

REPLY TO: 1560 State and Local Agencies

August 12, 1970

SUBJECT: "Preserving Nevada's Environmental Heritage"

TO: Forest Supervisor Maw - Toiyabe National Forest
P. O. Box 1331
Reno, Nevada 89504

Thank you for the opportunity to review the Committee Report on "Preserving Nevada's Environmental Heritage". I feel that the remarks made in the Preface constitute a classic and outstanding statement which should receive broad publicity throughout the State. In a few words, it gives the problems and concerns for the environment of the State of Nevada.

Environmental Education

This statement covers the subject well with the exception that the approach appears to be that of voluntarily introducing environmental education within the Nevada school system. In my opinion, depending upon voluntary methods would require an inordinate amount of time. Why shouldn't the Committee recommend that the State Legislature require by statute minimal levels of environmental education at primary, secondary and teaching instruction courses?

Mining

The approach taken by the Committee is that of looking at existing mining operations. However, the central point of environmental degradation on at least public lands was missed. This is to say, no consideration was given the damage being caused the environment by mineral exploration. This problem should be related to antiquated mining laws, both State and Federal. First, the State must provide necessary statutes for mineral location, filing of claims, and necessary enforcement and control thereof. Secondly, I would suggest that the State, through its Congressional Delegation, press for an updated Federal mining law.

Wildlife

Much is said in this statement about the necessity to maintain and improve the wildlife habitat. However, little has been said about the fact that 90% or more of wildlife habitat in Nevada exists on public lands. The inability of land administering agencies to properly manage and improve these habitats is vital in maintaining a satisfactory wildlife environment. By law, the State cannot assume this responsibility or work. Therefore, a call must be made for the Federal agencies to carry out their responsibilities in this respect. It is true that the condition of wildlife habitat reflects the trend in wildlife population,

and it is also a fact that the health condition and trend of wildlife populations is the best indicator Biologists have in determining the over-all condition of the environment.

Soils

I question if the State's soil conditions are properly rated. The Committee says that they are "very good". In my opinion this is an incorrect statement of conditions, and I am convinced that a good inventory of the State soil condition would show them to be at best fair, and probably poor. I say this on the basis of first a lack of soil data and the vast amount of lands in Nevada and then a second hand knowledge of the tremendous amount of accelerated erosion, mining damage, unstable roads, stream, lake and reservoir sedimentation, etc. This report deals much too lightly with accelerated erosion. Accelerated erosion is a problem of tremendous and unknown magnitude. It is probably the main contributor to the environmental degradation of the State, i.e. sedimentation pollutes streams, lowers plant productivity and upsets our ecological balance. I feel that the Committee should look much further into this problem and call for inventories and recommend corrective measures be taken.

Water

Again, as under the Soils section, there is a great gap in knowledge of inventory as to the hydrologic condition of Nevada's lands. The E-Q Committee should bear in mind and carry as a basic premise that management of the soil and water resource is basic to satisfactory environmental conditions and ecological balance. The fact remains that this is the area in which we have the poorest inventory and the least knowledge. On this basis, it is illogical to assume that all other resources can be satisfactory managed without knowledge of the basic resources.

The statement covers minimum stream flows and recommends regulation, but maximum releases from reservoirs were not covered. Maximum releases when not regulated can cause more damage than minimum flows.

The statement says the wilderness areas should be designated. The fact is, wilderness areas within the State and Nation have been designated by Congress and statutory management established. I wonder if the Committee is referring to other designations such as roadless areas in asking for regulated traffic.

I see no place within the statement where sound pollution was dealt with. Recent information on pollution indicates that sonic booms, motorcycles, heavy equipment, especially in back country areas, are serious forms of pollution and regulation should be considered.

Solid waste disposal on Federal lands has not been given consideration. I consider this a serious omission inasmuch as nearly all of the streams

originate and flow through public lands. There is no possibility of maintaining stream purity unless the Federal land agencies do a satisfactory job of solid waste disposal.

Open Spaces

I am concerned about the statement made on Page 62 concerning multiple use..."The multiple use concept now practiced by the Bureau of Land Management and Forest Service should be reevaluated. Special attention should be given to the areas where the practice has led to overall deterioration of the environment." The context of this statement is in error. An understanding of the multiple use concept will show that it is only where and when the concept is not practiced or improperly practiced that deterioration takes place. It is not the concept which needs to be reevaluated, but the mis-use or lack of use of the concept which needs to be looked into. The fact is, State, Federal and local agencies need the manpower, funds, authority and direction to carry out the concept. I feel very strongly that you should stress this situation with the Committee and try to get it amended to provide a proper context. Otherwise, irreparable damage will occur to this concept.

R A Rowen

ROBERT A. ROWEN
Forest Supervisor

August 13, 1970

Dear Sirs:

The Governor's Natural Resources Council has in this report considered separately, air and water quality, timber management problems, effects of mining operations, and other aspects of Nevada's Environmental quality. All of these problems, together, can of course be alleviated in general through guiding quality and quantity of consumption, limiting the state's population, and conserving wild lands and other natural resources.

Therefore, to help preserve Nevada's environment, we would support the Governor's Council in encouraging

1) Establishing a mass transit system of electric trains in the Reno-Carson area, with spurs to Stead and to North and South Tahoe, and along the Nevada Tahoe shore - to decrease the use of automobiles (major polluters) in the area.

2) Continuing to publicize information on environmental effects of consumer products (dye in paper products, phosphates in detergents, etc.)

3. Tightening regulations on auto emissions and encouraging use of propane and other less pollutive vehicles.

4. Setting some population limit for the state and basing plans for growth on this rather than on indefinitely rising growth curves.

5. Liberalizing laws on sterilization, abortion, and other birth control methods for those who wish to use them.

6. Setting aside representative and/or unique wild lands in Nevada as wilderness areas, and calling a

moratorium on building at Tahoe.

7) Teaching our school children, by example, what we mean by a clean environment and an energetic campaign (involving young people) to maintain it.

Sincerely,

The Nevada Ecology Center
P.O. Box 13487, University Station
Reno, Nevada 89507

United States Department of the Interior

IN REPLY REFER TO:
2030
(N-101)

BUREAU OF LAND MANAGEMENT
Nevada State Office
Room 3008, Federal Building
300 Booth Street
Reno, Nevada 89502

August 21, 1970

Mr. Edward C. Maw
Chairman
Environmental Quality Index Committee
of the Governor's Natural Resources Council
P. O. Box 1331
Reno, Nevada 89501

Dear Ed:

The report "Preserving Nevada's Environmental Heritage" which you made available for our review is a well written document, which merits the support of the Governor's Natural Resources Council and each of its member agencies individually. Recognition of a problem is, of course, the first step in its solution. We are hopeful that this is a starting point for in-depth studies to be participated in by all agencies and groups with an interest in effective land management.

I have several observations which I would like to make for your information and that of the Committee. A qualifying observation is that time for the preparation of the report was limited so, generally speaking, the surface of the environmental problem was barely scratched. It does seem that the Education Sub-Committee was quite effective in identifying their problems and developing recommendations within the structured framework of the educational system. It is important that advancements be made along the lines they suggest. However, I would like to further suggest that while the structured system is being improved, consideration be given to the use of professional expertise in land management agencies to conduct classes and lead seminars in environmental aggradation in the Buck Wheeler manner at the University of Nevada. In contrast, it seemed to me that the Mining Sub-Committee needs more time to come to grips with the issues. Their report was so general as to how little significance as a base for exploring the issues.

Other Sub-Committies --- Soils, Land Use, Forestry -- appeared more sensitive to the problems. The Wildlife Sub-Committee discussed people and habitat problems more than game management per se and I believe it is appropriate. However, it suggests that if environmental efforts in this area are to be effective the Sub-Committee membership base should be broadened and inputs solicited from a wide variety of interests. The Air and Water, Soils, Land Use, and Forestry Sub-Committies did a good job of identifying problems leading to environmental degradation and articulating the need to move positively at Federal, State, and local levels to achieve effective land management. Many suggestions significant for and in our time were made. These can be springboards to in-depth studies participated in by all agencies and groups with a real interest in environmental aggradation.

We have made no effort to dwell excessively or minutely on any particular aspect of this report. However, much needs to be done if the State is serious in its aim to protect and improve the environment in which we live and will pass on to our children. Among these needs and in addition to some of the suggestions made above, are:

1. The inclusion of all land managing agencies in the identification of environmental problems and suggestions for their solutions.

2. The active inclusion of the public early in this process through, for example, school house type get-togethers.

3. As recommended by several of the Sub-Committies, a recognition of the need for and development of state-wide planning to set a policy and operational frame for all agencies and groups.

Sincerely yours,

GERALD H. BROWN
Acting State Director, Nevada

1050 Cinderella Drive
Reno, Nevada 89503

August 13, 1970

Mr. James T. Havel
Legislative Counsel Bureau
Research Division
Legislative Building
401 S. Carson Street
Carson City, Nevada 89701

Dear Mr. Havel:

Here is the material submitted for part two of the Ad Hoc Committee on Environmental Quality, as discussed with you by John Sullivan earlier today:

The deadline for part two of the Ad Hoc Committee's report caught the Nevada Chapter of Trout Unlimited in its rawest infancy. Only four days earlier we were chartered by our national organization.

So we are unable to comment on specific problems in the detail we will be later on. But we would like to make some points:

1. Trout Unlimited believes, as was stated in the wildlife section of part one of the report, that "wildlife is a product of the habitat in which it exists."

2. Trout fishing can best be improved by improving trout resources, therefore Trout Unlimited is concerned with water pollution, land and water uses which alter the habitat for native trout, and establishment of wild river systems and wild areas where trout resources are involved.

3. Trout Unlimited recognizes the Fish and Game Commission's manpower problems and its members consider themselves a

source of volunteer manpower to assist the commission in such projects as rescuing trout from irrigation ditches as they are dried up in the fall.

4. Trout Unlimited shares the Ad Hoc Committee's belief in the importance of conservation education and intends to work in this area through fishing clinics and by encouraging youth organizations and our sons and daughters to work alongside us in our projects.

5. Members of the Ad Hoc Committee concerned over Nevada's environment in their official capacity should take encouragement in the fact that some private citizens share their concern to the extent that they have come together in a non-profit organization to voluntarily work to preserve and improve the state's cold water fisheries.

Sincerely,

C. Marshall Mast
President
Nevada Chapter, Trout Unlimited

IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

LAKE MEAD NATIONAL RECREATION AREA
P. O. BOX 127
BOULDER CITY, NEVADA 89005

July 28, 1970

Mr. Eric R. Cronkhite
Administrator
Nevada State Park System
201 S. Fall Street
Carson City, Nevada 89701

Dear Eric:

I wish to bring to your attention a minor discrepancy in your Environmental Quality of Open Space Analysis, which you forwarded to us for comment. On page 9 you show Non-Urban Open Space at 359,358 acres. This figure again is shown on page 12, which indicates 254,358 acres are contained within the National Park Service administration within Nevada. Lake Mead National Recreation Area has 697,641 acres of land and water within Nevada and Lehman Caves National Monument has 640 acres of land. The same erroneous acreage reference is made on page 26.

Also on page 26 I am somewhat at a loss to understand the full significance of the statement . . . "Recreation lands are subject to the same mismanagement or lack of management problems as other lands. " I will support your contention, however, that total comprehensive planning is as applicable on recreation lands as any other lands within the state.

I support your recommendations for responsible action needed and particularly favor such concepts as an environmental bill of rights, the need for additional acquisition for public purposes, comprehensive utility corridor planning, correction in mining management practices, and legislative review. Your brochure is provocative and draws our attention to some long-standing deficits of land management in Nevada. Thank you for the opportunity to comment.

Sincerely yours,

Roger W. Allin
Superintendent

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because there is a need ...

EOR

ENVIRONMENTAL OPERATIONS RESEARCH
P.O. BOX 1852 ● LOS GATOS, CA 95030 ● SUITE 6 ● LOS GATOS VILLAGE ● 408-356-7400

5 October 1970

Mr. Robert V. Long
Division of Forestry
Department of Conservation and Natural Resources
Carson City, Nevada 89701

Dear Mr. Long:

As a result of your most generous invitation, Mr. Frank Peterson and I had the pleasure of attending the meeting of the Ad Hoc Committee on Environmental Quality on 29 July 1970 in Reno. As one of the very few private organizations present, we did not feel it our place to join the discussion. By the same token, we also felt that it was not our place to submit any written comments during your revision schedule. While we did make informal comment to several of the subcommittee chairmen, we have waited until now to comment generally on the report--and we do it only with all good will and with no intent to criticize.

In general, we feel that the report "Preserving Nevada's Environmental Heritage" is a fine first report--especially when one considers the time available for its production. It is, as I am sure you recognize, only that first step--much, much more work must be accomplished in a continuing mode in order to preserve that heritage.

Our comments shall be organized as is the report, and keyed to the report. In general, they will be expansions or extensions, and will not concern themselves with any inconsequentials. First, however, we shall make some general overall comments on the content of the report.

Again, I wish to thank you for the opportunity of attending the meeting, and to make these comments on the report. Please use them as you will, and we hope they are of some use in your further developments.

Sincerely,

Peter B. Weiser
President

cc: E. J. DeRicco

GENERAL COMMENTS

1. The report, with the overlapping of many of the recommendations of the various subcommittee reports, implies the oneness of the environment, and that any controls should apply to the environment as a unit.

2. It is suggested that the most important basis for environmental control is a statewide land use plan combined with a statewide use of the principle of present use taxation.

3. Experience has shown that fragmented controls develop many unwanted problems. If it is at all possible, the State should organize around a Department of Environmental Quality, with full planning, monitoring, and control responbibilities over all facets of the environment. This sounds dangerously like setting up a czar--but it may be that this is what is needed.

4. The only major fault we find with the report is the lack of any detailed recommendations on transportation, agriculture, population control, and, as noted in the Introduction, the urban environment, to which should be added the suburban environment. Perhaps a separate group reviewing solid waste and noise pollution would have provided some fruitful information also.

5. In general, this was an exceedingly good report. We hope that these comments and the specific comments which follow are taken in the same light as they were given--one of constructive criticism from interested fans of the State of Nevada.

SPECIFIC COMMENTS

Preface

1. I do not see how what was said could have been said in any better fashion. In these few pages, the total statement of the environmental problem as we view it--and, we suspect, many view it--is cogently put. This preface could indeed be taken separately. In any instance, it should not be lost.

2. On page iv, we feel that the statement that "we already have the tools and technology" is too much of a generalization. While some information does exist in the separate regimes of the environment, not enough is truly known about the effects and little work has been done to integrate these data, and to view the environment as a whole. Too often, the use of a tool or technology to clean up one problem of pollution will create other kinds of pollution. Techniques must be developed to trace the possible effects of any action throughout the environment. We do agree, however, that regardless of what tools and technology do exist, the public incentive to utilize them is lacking, and requires a continuing program to involve the total public.

A rational methodology is needed to integrate this entire body of knowledge in a meaningful way. Little has been done in an organized manner as yet.

Introduction

1. National Wildlife Environmental Quality Index

It is to be hoped that the State of Nevada is not considering establishing the same kind of EQI as is shown in the article in National Wildlife, Aug.-Sept. 1969. While that Index makes good reading, it is much too qualitative to be of any real scientific use in measuring the status of Nevada's environment. Perhaps the author of the article does have the quantitative data to back up these "indices"--if so, it would be worth while to see them.

There is a basic need to develop a quantitative baseline status of Nevada's environment--to which any future environmental quality status can be compared. This is not a simple task, but we feel it can be done. A series of indices must be developed as well as an integrated index. The development of such a yardstick is not a simple matter, but it must be done.

2. Omission of urban environment

It is our belief that the inclusion of urban problems is of absolute necessity. In fact, the State should be viewed as a unit. Some environmental problems of the rural area have their origins in the growth of urban centers. Such problems as suburban

sprawl, increased utilization of recreation areas, decrease in wild life, degeneration of forests, increase in highway needs, etc., all have as one of their sources the growth of population, most of which is centered in the urban areas. Of the various kinds of pollution, air, noise, and water pollution have as major sources urban areas, while land, solid waste pollutions are enhanced. It is our feeling that the State of Nevada will succeed in preserving its environment only if the State is considered as a whole, not as a series of independent parts. For example, a statewide land use plan could be a basic control technique, with a single state organization to direct the program of environmental quality.

Education Subcommittee:

1. Courses

We feel that in addition to teaching teachers--with the laudable aim of inculcating an understanding of the environment into the younger generation, there is a real need to harness the energies of the present college generation. Rather than scattering environmental information throughout regular courses, we think that perhaps one should establish a curriculum aimed specifically at a rounded education to develop environmentalists. The environment should be analyzed and a multi-disciplined faculty established, involving the natural sciences (biology, physics, chemistry, meteorology, geology, etc.), some engineering, political science, economics, geography and planning courses. These are but ideas of some of the disciplines required of practical environmentalists. In addition, research programs aimed at Nevada's environmental problems should be initiated at the University.

2. Education of present generation

While it is absolutely necessary to have a continuing effort to infuse an understanding of our environment into the next generation, and to channel the energies of the college generation, there lies about us the present adult, non-school generation--which has been, and is continuing to affect adversely our environment. We believe that the State Department of Education, plus all media, should develop a continuing campaign on environmental problems for the general public. Laws and enforcement can do just so much. The people must be convinced that compliance is to their benefit. Admittedly this is a tough job, but we cannot just write off as lost the cause of environmental understanding of a very large majority of our population.

Tax Incentives and Penalties Subcommittee

1. Anti Pollution Devices (p.13 ff.)

One might question the implicit assumption that anti pollution devices are a fact of life. Perhaps they are not the answer. It might be best to offer incentives for processes and

equipment which would require no special anti pollution devices from the start.

Anti pollution devices--especially for mobile sources of air pollution--have not a particularly good history. Time and misuse decrease their efficiency reasonably quickly, so that the mere presence of a device is no guarantee of pollution prevention. The enforcement problem may become unmanageable if each vehicle must also be tested as well as visually inspected. The use of anti pollution devices for stationary sources of air pollution is much easier to control and enforce--but perhaps the installation of non polluting processes is a better sollution. Incentives and penalties should also include relief for companies installing inherently pollution-free processes and equipment.

In recommendation 1, p. 13, there is a statement regarding devices meeting the "state of the art". Is it possible to write a law compatible with technological change, innovation and discovery, main ingredients of the "state of the art"? This is much too flexible a status to provide for legal definition, in our opinion.

2. Abandoned automobiles

There should be more intensive thought given to the removal of abandoned automobiles--since the actual removal is the least of the problems. In California, at least, perhaps the most vexing problem is legal. There is no mechanism presently available for the legal disposition of such hulks. Wrecking yards will not (can not) accept automobiles without proof of ownership--and abandoned cars do not normally have "pink slips" attached to them. Nevada should consider these aspects, and as well means of checking the ownership of cars. Perhaps responsibility can be vested in the motor vehicle department, with the legal authorities involved, and that the computorized files of automobile registration be used, in conjunction with criminal files, for checking the involvement of the automobile in a crime. In addition, the organization for collecting and disposing of the cars must be established and financed.

3. Electrical energy

Recommendation 3--on electrical energy charges is perhaps the most original and useful of all of the recommendations in this section. One of the major contributors to pollution is the power industry--the exponential increase in demand for electrical energy implies the demand for more power generation--which can pollute the air--or the land--or the water--or all three. Nevada could go far by implementing such a recommendation.

4. Greenbelt

We feel that the recommendations for greenbelt and open space are relatively weak. In some countries (like England), greenbelting around cities has worked very well. A tax committee, such as this one, should probably have investigated the reasons for its success. While there are other reasons, basic to the success is the method of taxing the land. Perhaps the only way to insure success in maintaining land in agriculture, forests, and other open space in the environs of urban concentrations is the principle of present use taxation, where the land is taxed on its present and actual use, rather than, as is done in this country, on greatest possible use in the region--which taxes suburban open land as if it were to be developed to some intensity. There have been attempts to provide exceptions to this principle, but they have not truly succeeded. The Legislature of Nevada might indeed consider establishing a present use system of land taxation--and Nevada, with its vast spaces, and comparatively low population is in a better position to do this than many another state. Hand in hand with this should go a state-wide land use plan.

5. Other comments

With the great interest in forestry, open space and wild life, can there not be tax incentives to retain trees, minimize grading, and for development which is integrated with the environment, and which conserve the natural resources? What about, specifically, tax incentives and penalties for the mining industry?

Mining Operations Subcommittee Report

It is felt that this report appears more as an apology for the mining industry--and makes essentially no worthwhile recommendations. The recommendation of county control rather than state control is both transparent and specious. The recurring comment that mines are so far from population centers that they have little effect on the environment does not consider the population increases anticipated, nor does it truly consider the larger distant effects which could occur through polluting rivers which are utilized by populated areas, for example. Mining and mining operations in Clark County must undoubtedly have an effect upon people.

One cannot exempt mining from control, since it does pollute land, water, air--and develops a solid waste problem. Since, also, Nevada is a great hunting state, the effect of uncontrolled mining operations on wild life must be considered. There are probably wild life refuges, national forests, state parks in close conjunction with mining operations--what is the effect on these?

In addition, mining is just part of the State--and if the State is to be considered as a whole, mining must also be considered. It would perhaps be best to add members other than mining companies to any group who may be asked to review the environmental impact of the mining industry.

Wild Life Subcommittee Report

This, as far as it goes, is one of the better reports. Unfortunately, it covers only the game species, thus only covers half--or less--of the story on wild life. The report also points out the need for an integrated approach to all of these problems of the environment, for it lays some of the problems with decreasing wild life population in the lap of air and water pollution, increasing population and growing urban sprawl.

Basically, the wild life aspect should be studied in the full (including all species), and relating their condition to pollution. Often, it has been found the status of wild life species is a forerunner of future conditions. When major waters become polluted (especially through eutrophication), game species disappear. This could be an early warning system for worse pollution to come. Probably all species could be used as signals of pollution.

EQI. What indeed is the basis for stating "fair"-- and how would this compare with the EQI as stipulated "very good" in the Soils Subcommittee Report--or "fair" in the Forestry report? These qualitative statements probably do not have a common scale based in quantitative data.

There is an apparent over use of the major waters--in the form of diversions, sewage, erosion, development activities--to which the population and composition of fish species might possibly be correlated in some detail as part of an overall state environmental program. One segment of the environment is not independent of all others.

The recommendation not to "divert" funding derived from sportsmen away from game species is indicative of the need for a) more funding and b) funding independent of a special group. All wild life species are important to Nevada's environment, not only those which can be hunted or fished. We would suspect that the game species exist because of their positions in the ecology and in the food chain--both of which are made up, in part, of other species--hence perhaps the non-game species should also be studied.

What has concerned us here is the implication that any further environmental control efforts would necessarily have to take place within the present organization and funding structures. We would hope that this is not exactly true.

Comments on recommendations, pp. 36-38:

1) The statement of lack of knowledge is certainly true. However, as stated earlier, wouldn't it be important to set up an educational campaign for other than school children? Can the environment wait for 5-15 years for these children to grow? The present adult population must also be educated as much as possible.

2) Since all phases of government share a responsibility for preserving the environment--and since in general it may be assumed that the public and industry have not and will not voluntarily act, perhaps it might be wise to coordinate all environmental quality actions by assigning them to one central agency which has planning, programming, monitoring and control authority--with teeth. This agency could then plan the future and coordinate with the public and industry--and as well check on compliance with the plan.

An environmental council would still be a useful arrangement--although, as noted above, voluntary actions to save the environment, especially when standards and criteria have not been set, have at least until now been not too successful. Any criteria which are established could then guide the single governmental agency in its actions.

3) How can the Fish and Game Commission be given authority to preserve wild life habitats--which at the same time could be under the jurisdictional control of forestry or agriculture or recreation governmental agencies? This again points up the need for organizational as well as study and planning coordination.

Soils Subcommittee Report

Perhaps this report should be combined with the land use report, since both (remembering the oral report of Mr. Cronkhite) seem to be involved mostly in what goes on on the soil, not with it. This report is a fine one--and as we note, takes the mining industry to task for polluting the land. Again we are also curious as to the meaning of an EQI of "very good".

The report is very firm in its analysis of the causes of intrusion on the soil landscape. We would however, suggest that the State rather than the counties should be charged with establishing a statewide plan and vigorous controls over land use.

Earlier comments on greenbelting apply here also--that is, the basis for taxation of land should change to the principle of present use. In addition, it has been found in California that halfway methods--like the Williamson Act--tend to create a patchwork of open space, often not where planners would prefer and the situation demands. Thus, a single authority should be able to stipulate greenbelt areas and to maintain their control.

The call for added funding by this, and other, reports is well taken. Less added funds would undoubtedly be required if there were a single environmental quality agency, rather than the present multiple responsibility. Again, this report, as others, overlaps other reports, adding strength to the need for one strong agency.

Water and Air Pollution Subcommittee Report

This report overlaps others, especially, in the water area, with the Fish and Game report. By now, one can expect this paper to applaud the recommendation of a statewide land use plan. However rather than an Office of Planning Coordination, which would have little power, we suggest that if it is possible, a State Department of Environmental Quality be established, with the environmental functions of other departments transferred to it. It would also have the responsibility for establishing and controlling a statewide land use plan--as well as monitoring and controlling actual pollution.

The suggestion (p.47) and implication that water and air pollution standards be set and that development be controlled so as not to exceed these standards is laudable, and should be expanded to include all environmental criteria.

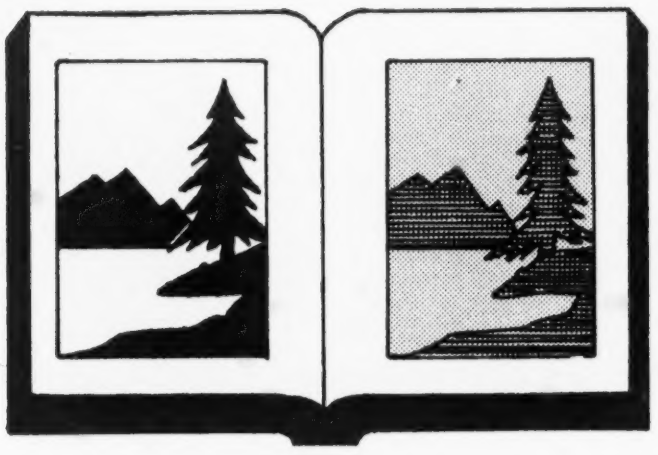
Unfortunately, this report, other than the land use plan and the Office of Planning Coordination, seems to point out problems, and to suggest only generally that something ought to be done. More specific implementation recommendations might have been somewhat more usable. In many instances, the recommendations probably cannot be carried out, or will require inordinate amounts of money.

The act quoted on p. 49 perhaps should be extended to cover the entire environment as California's intended constitutional amendment (not submitted this year) would do.

Comments made on other reports cover any comments we would make for the land use and forestry reports.

Conclusions of the Subcommittees

education subcommittee conclusions



SUMMARY AND RECOMMENDATIONS

EDUCATION SUB-COMMITTEE

The Education Sub-Committee based its report on the premise that its basic intent was to assist this and future generations to safeguard those environmental conditions that are essential to the continued orderly development of the State of Nevada. At the same time, it is believed that the preservation of desirable conditions can be maintained, even as change occurs.

The sub-committee is also committed to the premise that education concerning our environment is the key to future environmental quality in Nevada.

In reviewing the present status of environmental education in Nevada, there emerged the rationale and basis for the following recommendations for positive action. Implementation of these recommendations would build on existing strong points and provide a long-term program that would eliminate many deficiences in our environmental education program as it is presently constituted.

I. It is recommended that strong leadership be provided by the Department of Education for environmental education with special emphasis given to the following:

   (a) Coordinating the efforts of the various disciplines within the educational system that are concerned with environmental education.

   (b) Developing and distributing instructional materials for use in environmental education.

(c) Developing programs of in-service teacher training in environmental education.

(d) Coordinating the efforts of private organizations and governmental agencies that are concerned with environmental education.

This would require one professional staff member with appropriate qualifications, clerical support, and adequate funds for travel, both within Nevada, and to essential conferences outside the state, and for the preparation and distribution of instructional materials of all types to local school districts.

IN ORDER FOR THIS RECOMMENDATION TO BE IMPLEMENTED, LEGISLATIVE ACTION IS REQUIRED. SPECIFIC POINTS TO BE INCLUDED IN SUCH LEGISLATION ARE AS FOLLOWS:

The Nevada State Department of Education budget be augmented as shown below.

1.	Personnel - Curriculum and Instruction		
	a. Education Consultant	(1)	Grade 38
	b. Senior Clerk-Stenographer	(1)	Grade 21
2.	Operations and Maintenance		
	a. Travel In-State		$2,000.00
	b. Travel Out-of-State		$1,000.00
	c. Instructional Materials		$3,000.00
3.	Basic Operational Expense		
	a. Printing		$1,500.00
	b. Equipment		$3,000.00
	One Office - complete		$2,000.00

II. It is recommended that an official advisory committee be established and funded on a statewide basis to advise, support and coordinate environmental education programs.

Its composition should be such that the educational community, natural resource agencies, lay public and conservation organizations, as well as specific individuals recognized for their knowledge and ability, are represented.

IMPLEMENTATION

Establishment of an advisory committee for Environmental Education:

1. Environmental Education consultant to serve as secretary.

2. Committee to be appointed by Governor.
3. Not to exceed 10 members.
4. Composition
    Representatives of such agencies as:
        Federal Agencies
            1. Bureau of Land Management
            2. Bureau of Indian Affairs
            3. U. S. Forest Service
            4. Soil Conservation Service
        State Agencies
            1. Conservation and Natural Resources
            2. Nevada State Library
            3. University of Nevada System

Four representatives of conservation organizations, school districts and the lay public.
Composition of the committee shall be such that members shall be residents of the various geographic areas of the state.

5. Funding
    There shall be appropriated from the general fund a sum of $4,000 to provide per diem and mileage for the attendance of members at committee meetings at least four times per year at such time and place as the elected chairman shall designate.
6. Purpose
    A. To advise education consultant on matters of environmental education.
    B. To provide aid in coordinating an environmental education program in the public schools.
    C. Such other advice and counsel to benefit and promote the cause of environmental education.

III. It is recommended that legislation be enacted prescribing a broad program of environmental education that would become a planned part of the school curricula, for elementary, secondary and adult classes.

IMPLEMENTATION

Legislation drafted and enacted that would require that:

1. Instruction in the preservation of our environment and principles of conservation of our natural and human resources be included in the curriculum of all elementary and secondary schools of the State.
2. Persons responsible for guidance programs in each secondary school provide students with information concerning careers in the area of environmental quality.
3. The repeal and deletion of NRS 389.070.

IV. It is recommended that course work in environmental education be included as a regular part of the teacher education program. Teacher certification regulations should be broadened to include preparation in environmental education. We recommend that institutions of higher education and the community colleges further expand their efforts to increase graduate, undergraduate and technical course offerings which will meet the growing needs for environmental understanding in all career areas.

V. It is further recommended that increased emphasis be placed upon opportunities for all Nevada youth to participate in camps and outdoor education programs. It is also recommended that all appropriate agencies and organizations emphasize this type of activity as a part of their regular work program in order to expand the study of the environment to adults and youth of all ages.

Rationale for Recommendation

In order for environmental education to have any serious impact in Nevada, the program must be developed on a statewide basis. Anything less would result in fragmented and ineffective results. Resource materials, in addition to instructional aids, must be provided from the state level and in addition to those materials that can be developed and utilized in the local district. This also enhances the efforts for a coordinated and uniformly high quality program. It is vital that any educational leadership have immediate access to the new and changing procedures and policies in this field. It cannot be obtained from any better source than a regularly constituted advisory committee actively involved in Nevada's environmental problems and their solution.

Unless we have meaningful and direct emphasis upon those areas of school curricula which are not considered the basics in education, these topics tend to become extras and are

included only on a supplemental basis and are largely dependent upon the interest and enthusiasm generated on a class, school or district basis. With direct and effective leadership on the state level, backed by legislative directive, environmental education can become an integrated part of every school curriculum that will benefit every child in the state, and, over a period of years, enhance the total environmental quality of the State of Nevada.

Concurrently with the development of an environmental education program in our public schools, there must be developed the knowledge and awareness on the part of the teachers so that such a program can be implemented effectively. Higher education institutions must respond with increased offerings so that such training is available within the state. In addition, as knowledge and awareness of environmental problems increase, there will be a corresponding increase in career opportunities within the state. Such a demand must be filled from graduates of our institutions (both community colleges and universities) who can relate to our own unique problems.

In summary, the investment in dollars in implementing these recommendations for overall development of environmental education will provide a higher return in improving the environmental quality in Nevada than any other investment known.

taxation subcommittee conclusions

FEEDBACK REPORT AND CONCLUSIONS

TAXATION SUB-COMMITTEE

The only official written feedback to the report of the Taxation Subcommittee was submitted by the League of Women Voters. This comment stated:

> "Tax Incentives: The League consensus disagrees with the tax incentive approach. Instead, we believe that the cost should be paid through absorption in production cost, adding to the price. We feel the real solution to pollution control is the passage of stringent laws and regulations, their strict enforcement, and penalties sufficient to prevent their being regarded as just an operating expense. Since under federal law, existing plants can receive tax incentives credits that virtually pay for the equipment, should the taxpayer pay for them twice? Also, we might ask if the additional administrative cost of the incentive program would not increase to the average citizen the cost of pollution control?
>
> "We do feel that any tax incentive approach should be so written as to give exemptions only if the company can effectively demonstrate a reduction in pollution and/or effectively demonstate that the equipment installation resulted in an actual increase in overall costs.
>
> "We would encourage further discussion and probing into the ramifications and effectiveness of other incentives and penalties mentioned although the League does not have official positions in these areas."

While the committee concurs with the final two paragraphs of the League of Women Voters' report, it was the consensus of the committee that tax incentives, as well as tax penalties, should be an integral part of any proposed anti-pollution legislation. The commercial and industrial firms are now paying a major portion of the tax revenues and the majority are in direct competition with

out of state firms for their products and services. Any requirement that such firms increase the prices of their goods and services to absorb the cost of anti-pollution devices would be unfair to the Nevada firms. Such action could result in the closing of many, many of our business establishments since they could no longer compete on a profitable basis with out of state firms not subject to such restrictions. This, in turn, would result in a loss of jobs and livelihood for an untold number of Nevadans - the very people for whom we are attempting to preserve Nevada's environmental heritage. The federal tax credits, of course, would apply to out of state firms, as well as Nevada firms, installing anti-pollution devices. It is the state laws that must be uniform to insure that all business activities that are competitive are treated on an equal basis. The administrative burden of the incentive program would be minimal, and the loss of tax revenues insignificant. Additional costs would arise through a state inspection program to insure that the devices were properly installed and performing their designed function. This cost would be essential whether or not tax incentives or tax penalties were enacted relating to such devices, and the responsibility for this action would be included in the functions of whatever department is assigned to establish and control anti-pollution standards.

The following unsigned note was received from the audience during the July 29 presentation of the report:

> "Has any thought been given to taxation of individual property rights, example, mineral rights. It does not

> seem right that these rights may be held at no cost when future development may make these rights extremely valuable. If taxes were not paid on these rights individually, then they should revert to the land use holder and he would have to pay the tax. This would consolidate these scattered rights."

The Nevada constitution, of course, prohibits the taxation of unpatented mining claims, and it is only the net proceeds of such mines that are subject to the bullion tax. The state does tax oil and gas leases on federal land under the authority of NRS 361.157 and 361.159. However, this taxation is being tested in court in Nye County. Mining is, of course, an extremely important segment of the economy of the state - particularly in the rural counties. The exploration for new strikes should be encouraged to provide greater employment for Nevadans. From a practical standpoint, the determination of value of a mining claim is particularly difficult. In the case of the federal leases, the annual rental fee can be capitalized to arrive at a market value. I would note here that such value approximates $2.20 of assessed value per acre. Though the mining rights, as such, are not taxed on private properties, the property itself is subject to taxation to the land holder, and the determination of such value does include the income producing capability of the property. One consideration that might be made would be a statutory requirement that the ground be restored to its natural state if a mining exploration project was unsuccessful. Perhaps a bond could be required to insure that this is accomplished.

Another unsigned question received at the July 29 meeting read as follows:

> "Who should pay the bill for the control of the exhaust emission of the internal combusion engines - should the general public be taxed for this control, or the owner of the vehicles and the manufacturers of the autos and the fuel they burn?"

As a result of this question, a review was made of the vehicle privilege tax and the special fuel tax. It was noted that vehicles having an unladened weight of more than 6,000 pounds are favored by the statutes with a more rapid depreciation schedule, and, thus, lower taxes than are private vehicles. As an example, a private vehicle receives a depreciation of only 15 percent during the first year of use while the commercial vehicles receive a 25 percent depreciation the first year. It is not until the 9th year of age that the two schedules merge. The rationale behind this increased depreciation and the lower taxation for these major pollution producing vehicles is not clear. It is recommended that this area be reviewed by the Legislature, and that the taxes be made equal for all vehicles. It was also noted that the special fuel tax (diesel fuel) has a tax rate of but 6 cents per gallon, and there is no proviso for the counties to impose optional taxes in this area. The gasoline tax in Clark, Washoe, Nye and Douglas Counties is 8 cents per gallon; in Carson City and Humboldt Counties, 7 cents per gallon; and 6 cents per gallon in the remaining counties. It is recommended that the special fuel tax be increased to a minimum of 8 cents per gallon, and that the additional 2 cents per gallon be specifically designated for anti-pollution

control. In the privilege tax area, the rate is set at $4.00 per $100 of valuation for all vehicles, including the large pollution producing trucks. The majority of the urban residents in Nevada are paying $5.00 per $100 of assessed valuation for all other types of property. Certainly, it would appear that some consideration should be given to increasing the rate of the privilege tax to the constitutional maximum of $5.00 per $100 of assessed valuation; the extra $1.00 per $100 could be set aside specifically for anti-pollution measures. The committee has already recommended consideration of requiring the installation of anti-pollution devices on all motor vehicles and for annual inspections with attendant penalties for vehicles not equipped with such devices.

Another unsigned comment received July 29th was:

> "Why aren't the power companies included? The utility lines, power stations, and encouragement of power use are all damaging to the environment."

The committee had recognized the problem of additional power usage - however, it is the consumers and not the utility companies that make the heavy demands for electrical energy. As technology advances, more and more demands for electrical power are anticipated. It is extremely doubtful that the public would accept a return to the wood-burning stove, a corrugated metal washboard, or a hand-wound victrola to replace electronic ovens, automatic washing machines and television sets. It appears that tax incentives to encourage the power companies to develop anti-pollution devices are the most practical solution to this problem.

Conclusions and Recommendations

The initial recommendations made by the committee should remain in the final report. In addition, the following recommendations are made as a result of the feedbacks received:

1) Amendment to Article 9, Section 5 of the Nevada State Constitution: Amend the wording of Section 5 by deleting the period after the first sentence thereof, and adding the following: "or for combating pollution of the air caused by the vehicles using such fuel." The final sentence of the section to remain unchanged.

Justification: Section 5 currently limits use of the proceeds from any excise tax on gasoline or other motor vehicle fuels, with the exception of cost of administration, to the construction, maintenance and repair of the public highways. Since the vehicles do contribute to the pollution of the air of Nevada, it would appear appropriate to authorize the use of at least a portion of such tax moneys to combat the pollution.

2) Special Fuel Tax: Revise NRS 366.190 to read as follows: "Imposition and rate of tax. A tax is hereby imposed at the rate of 8 /6/ cents per gallon on the sale or use of special fuels."

NRS 366.700. Distribution of proceeds: Three-fourths of the moneys (all money) received by the state treasurer

pursuant to the provisions of this chapter shall be placed to the credit of the state highway fund. The remaining one-fourth of the moneys received shall be deposited in a special fund whose sole use and purpose shall be the improvement or retention of the environmental quality of Nevada. Such fund to be administered as specified by the legislature."

Justification: To bring the special fuel tax rate more in line with the motor vehicle fuel tax rates, and to provide funds to combat the air pollution created by the users of such fuel. Enactment of this recommendation could not be effected until the constitutional change indicated in subparagraph (1) is completed.

3) Revise the motor vehicle privilege tax, NRS Chapter 371, as follows: NRS 371.040. Annual amount of privilege tax. "The annual amount of the privilege tax shall be 5 /4 7 cents on each $1 of valuation of the vehicle as determined by the department."

NRS 371.050. Repeal subsection 3, which now reads: "For each bus, truck, truck tractor, trailer and semitrailer having an unladened weight of more than 6,000 pounds, the department may use 85 percent of the original purchaser's cost price in lieu of the manufacturer's suggested retail price."

NRS 371.060. Revise subsection 1 to read as follows: Delete /Except as provided in subsection 2/. "Each vehicle shall be depreciated by the department for the purposes of the annual privilege tax according to the following schedule:"

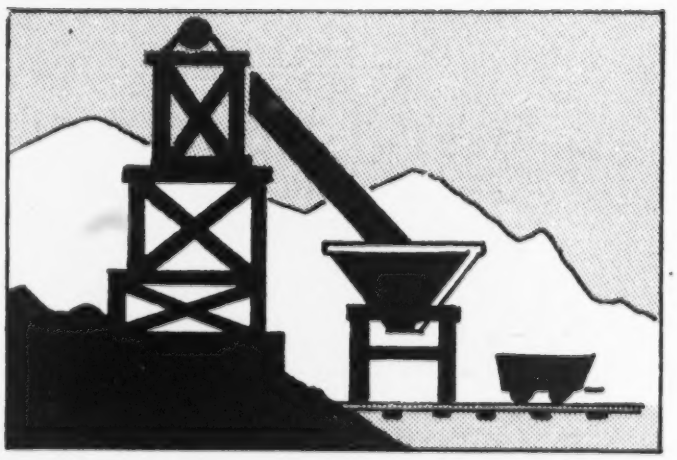
The rest to remain as now written.

Repeal subsection 2, which provides an accelerated depreciation rate for vehicles having an unladened weight of more than 6,000 pounds. Renumber subsection 3 as subsection 2.

NRS 371.230. Collections deposited in motor vehicle fund. Add the words, "Four-fifths of the moneys collected by the department for privilege taxes and penalties under the provisions of this chapter shall be deposited in the motor vehicle fund. The remaining one-fifth of the moneys received shall be deposited in a special fund whose sole use and purpose shall be the improvement or retention of the environmental quality of Nevada. Such fund to be administered as specified by the legislature."

Justification: To bring the motor vehicle privilege tax rate more in line with the property tax rate paid by the majority of the urban residents of Nevada; to delete the favorable tax position now given to the owners of vehicles having an unladened weight of more than 6,000 pounds through an accelerated depreciation schedule; to make the tax uniform on all pollution producing vehicles, and to provide funds to combat the air pollution created by such motor vehicles.

minerals subcommittee conclusions



SUPPLEMENT

MINERALS SUB-COMMITTEE

Considerable feed back has been received concerning the minerals sub-committee report, wherein the effects of the minerals industry were cataloged, as they effect the environmental quality of our state. Some of the comments were critical, some laudatory, most expressed the opinion that the entire matter of our environment should be studied in a depth far beyond the report as published. It was the impression of the sub-committee on minerals that our task was to index the effect of mining on the environment and ecology. No funds were available for professional assistance, travel or expenses incurred by the sub-committee members.

At the outset, it was obvious that the most expert people to perform the task would be from the mining industry and from our own School of Mines. The persons representing the companies are vitally interested in our problem, obviously, as is the School of Mines. Several meetings were held with the members participating at their own or their companies' expense.

The sub-committee is confident that it has honestly indexed, or told the story as it is, so far as the minerals industry is concerned. Every plant or mine in the state with more than a handful of employees has been described honestly and with the plants ownership named. The sub-committee has not talked in generalities. However, with the time and tools available,

an analysis was not possible. The basic work has been accomplished. As noted we feel that we have offered the diagnosis. It will take legislative action to perform the surgery of correction.

Several comments are in order to reply to some of the comments received as a result of the report. First, in reply to those who consider the report to be superficial, it most certainly is. The whole problem that we find ourselves in is not going to be solved quickly or easily. Certainly the short time that the sub-committee was allowed to complete the study and report made possible nothing more than a self analysis by the mining community. Each member performed the committee task in addition to his regular employment.

An in-depth study should be made by experts in the field of environmental problems. No doubt the study will be expensive and take quite a little time, but how else can the problem be solved? Comment concerning the method of exploration and assessment work on mining properties was common with the recommendation that such work not be done in such a way as to scar the earth as is currently the case. It was generally recommended that such work be done by drilling which would be more expensive but less harmful. The sub-committee agrees and suggests that a revision of current statutes is desirable. Indiscriminate or mass filing of claims by commercial groups should also be controlled by legislation.

In summary, the sub-committee during its study of Nevada's environment problem became convinced that, as in other states,

the greatest contributor to pollution of the atmosphere, is the automobile. Estimates range from sixty-five percent to eighty-five percent of the total problem is so caused, yet little comment was apparent concerning control of automobile-produced emissions. Mining accepts its responsibility in our state and is in the process of correcting its deficiencies. If other areas of major concern are as interested and as involved in solving this tremendous problem, Nevada will solve its pollution problems.

wildlife subcommittee conclusions

SUPPLEMENT

WILDLIFE SUB-COMMITTEE

The feed-back supplement comprised of written comments together with questions passed to the panel of sub-committee members was of more limited value than hoped. Generally, the supplement can be interpreted that the public is concerned about environmental quality and is interested in its improvement.

The most impressive and valuable organizational comments were those of the League of Women Voters of the United States, Las Vegas Chapter. They offered not only some valuable differences in assessment and solutions, but procedural recommendations as well.

The League realizes there will be costs involved, and as consumers, expect to pay additionally for just measures to alleviate environmental ills. Costs go beyond just commodity prices however. Whether the public is willing to pay the additional cost is still unknown. Would the public for example, be willing to buy apples in which an occasional one had a worm? Or would they still prefer fruit free of blemishes, together with pesticide impact on the environment that created the perfect fruit?

The supplement does point out several areas of immediate concern which deserve further study and recommendations. Use of vehicles off roads is an area that needs programming. Presently such use has a degradative influence on the quality of experience of other wild country users. There is a more basic objection to off-road vehicle use too, that of undue disturbance to wildlife

and soils together with plant destruction. There is a definite need for workable regulations governing off-road vehicle use.

Several professionals in their comments expressed the desirability of recommendations for land use planning. Land use planning is a must. Industry, agriculture and government, together with public land users, must inventory needs both now and anticipated if the several segments are to be served while maintaining environmental values.

Feedback information illustrates a need for a more comprehensive appraisal of mining in Nevada. A review of present laws and possibly the recommendations of more valid or workable ones is indicated. This revision should strengthen the position and operation of serious and conscientious mining, but act as a depressant to irresponsible operations and nefarious schemes.

The first report, "Preserving Nevada's Environmental Heritage," is basically a presentation of how man has ill managed his environment. This phenomena has not been the result of any overt action, but rather the insipid result of trying to provide a fuller,more enjoyable material existence for a rapidly increasing population. Each committee was fully cognizant of this basic problem, but none was willing to get really involved. This problem should be evaluated objectively and in relation to environmental influences alone. If a consensus is reached, that evaluation should be reported.

Nevada, due to extensiveness of Federal lands, should incorporate ideas and planning of Federal management agencies. Federal

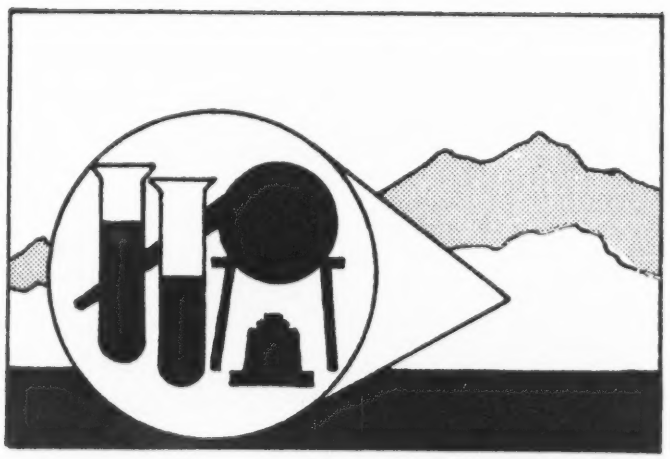
land and mining laws that have an influence on quality of the environment can be best judged with expression from those administering the public lands and laws.

Recommendations are no better than their implementation. The League of Women Voters have an excellent idea, the workshop concept of getting the point across to legislators. This workshop idea should be explored as a good means of accomplishing implementation by the sub-committees.

Environmental education was recognized as important in several of the comments. Due to the complexity of environmental preservation and enhancement, it is readily apparent that this is the most important long term solution. Until the general public has a keener knowledge of and appreciation for higher environmental standards, laws, rules, edicts and regulations are doomed to failure.

Environmental committees have much additional work cut out for them. Now it is incumbent on the group to get more specific Where committees have approached problems and solutions differently or incompletely, a unified effort toward a recommendation incorporating feedback material is now feasible and necessary.

soil subcommittee conclusions



SUPPLEMENT

SOILS SUB-COMMITTEE

Review of feedback information from individuals and groups indicates that the 'Phase I' did not have sufficient distribution. The summary report shows the weighted averages of all factors considered and without the 'Phase I' a reader could be left with the impression that certain factors such as accelerated erosion and intrusions on soil landscapes had not been given attention.

After thorough consideration of comments received, the Committee stands firm in it's conclusions and recommendations.

We specifically point out the need for legislation in the following areas:

I. Pesticides

1. Amendments to the present registration of economic poisons providing for changes in certain definitions, stronger provisions for refusing to register, and ability to cancel a registration and/or to provide for restricted uses of designated pesticides.

2. Amendments to the pest control operators act to provide closer supervision and to ensure proper use of pesticides by both licensed operators and individual users.

   Disposal of use containers is a problem. Regulation authority is needed to allow for a reasonable procedure to be established in each county.

3. A new statute is needed to provide for proper monitoring for pesticide residue. This will require laboratory facilities and enforcement ability.

   A reasonable set of tolerances needs to be developed by administrative authority.

The above three proposed legislative bills have been developed and will no doubt receive close review by legislative committees.

II. Soil and Water

Because of the close relationship between soil and water in our environment, we recommended that a coordinated program combining the present activities of the State Engineer in water planning and present authority of the Planning Board in land planning be developed.

Consideration should be given to providing a Planning Agency Board in land and water use. Such a Board should include all public agencies presently interested or charged by law with responsibility in water and land planning.

Authority in this agency should include the control of water use originating in a given area. Transfer of water from any given basin or rural area for urban or industrial use needs to be under strict regulation.

Greenbelt ---- (Authority of Tax Commission)

We recommended that the California Conservation Act be reviewed for possible application in Nevada for the purpose of monitoring rural areas in their present state.

Phase I of our report pointed out briefly the mechanics whereby an owner agrees with the county assessor to maintain the present use of land in return for a static tax base.

The Department of Conservation presently has authority in developing a soil survey and mapping program.

We recommended this program (reported to be a Federal-State effort) be accelerated more rapidly to develop information on soils and to develop soil maps for use by the many interested individuals and agencies.

III. Soil Disturbance

As pointed out in our previous report, legislation needs to be developed to control off-road four-wheel drive vehicles, dune buggies and motor-bikes.

For recreational use, specifically designated areas can be provided for motor-bikes and dune buggies.

Enforcement in this area rightfully belongs to the land owning agency.

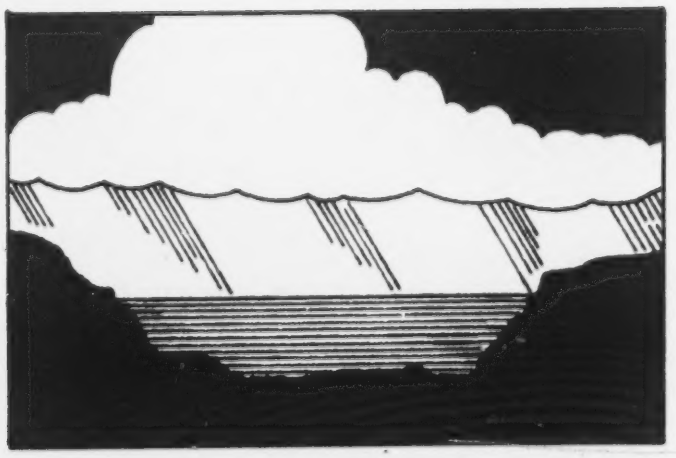
A resolution asking Congress to take appropriate action would be desirable.

Counties should be encouraged to restrict the use of such vehicles to the limit of their authority.

Mining

The State Mine Inspector's authority in controlling discovery work on a claim needs amending and complete review. We recommend resolutions from the legislature asking for controls of mine dumps, sumps and run-offs into irrigation and livestock water.

water and air quality subcommittee conclusions



SUPPLEMENT

AIR AND WATER QUALITY SUB-COMMITTEE

The Sub-Committee on Air and Water Quality to determine the significant sources of pollution analyzed the current quality of Nevada's air and water and the activities of man or nature that were contributing to the degradation of the air and water where it is known to exist, and from these quality indices estimated the probable future effects from increasing population and activities.

For the present and future water quality indices, the major water courses in the state, the Humboldt, Truckee, Carson, Walker, Colorado and Snake River Basins were considered individually and the remaining small water courses were considered as a whole. For the present index the known effect of factors as agriculture, recreation, sewage disposal, solid waste disposal, industry, mining, power plants, water storage and land development were assessed with respect to their impact on water quality, this in turn was assessed with respect to potential beneficial uses of the waters including municipal, agricultural, industrial, power production, recreation, fisheries, aesthetics and wildlife. The same procedure was used for a determination of the future water qualities taking into consideration those factors which would become more significant as the population of the state increases.

Overall the quality of the waters in the state are rated as fair, but continued degradation can be anticipated as the waters suffer increased abuses resulting from man's activities. Certain minor streams received good to excellent ratings and are expected to remain in good condition because of their remote locations while the major water courses will suffer more damage from increasing population. Significant problem areas defined and the factors contributing to the problem were:

1. Colorado River System

   Degradation from:

   a. Sewage effluents
   b. Industrial wastes
   c. Agricultural wastes (Las Vegas Wash, Virgin and Muddy Rivers)
   d. Natural erosion.

2. Truckee River

   Degradation from:

   a. Sewage effluents
   b. Solid waste material
   c. Agricultural wastes
   d. Low flow resulting from upstream diversions
   e. Water storage
   f. Siltation
   g. Power plants

3. Carson River

   Degradation from:

   a. Low flows during dry periods
   b. Sewage effluents
   c. Agricultural wastes
   d. Mining wastes
   e. Gravel mining (in river bed)

4. Lake Tahoe

Degradation from:

a. Construction activities
b. Erosion (resulting from removal of vegetation)
c. Fertilizers (from golf courses)
d. Recreational uses
e. Septic tank discharges

It is apparent that the significant sources of water pollution are a result of man's activities and dense population.

For the present and future air quality indices three different areas of the state were considered individually. These areas consisted of the Washoe region which included Washoe, Douglas, Storey and Lyon Counties and Carson City; the Clark region which included Clark County only; and the remainder of the state. Again, factors contributing to air pollution were assessed with respect to their present and future relative significance. The factors considered were: Transportation, industry, agriculture, solid waste disposal, construction, mining and natural sources.

Generally the quality of the air was rated as good, but problem areas were identified and the factors contributing to the problem were:

1. Washoe Region

Degradation from:

a. Transportation
b. Space heating
c. Windblown dust (industrial activities)
d. Construction

2. Clark Region

Degradation from:

a. Windblown dust (natural)
b. Industry
c. Transportation
d. Construction
e. Solid waste disposal

3. Remainder of state

Degradation from:

a. Windblown dust (from dry lakes and unpaved roads)
b. Mining operations (Lovelock, Gabbs, McGill)
c. Transportation
d. Solid waste disposal (burning dumps)
e. Space heating

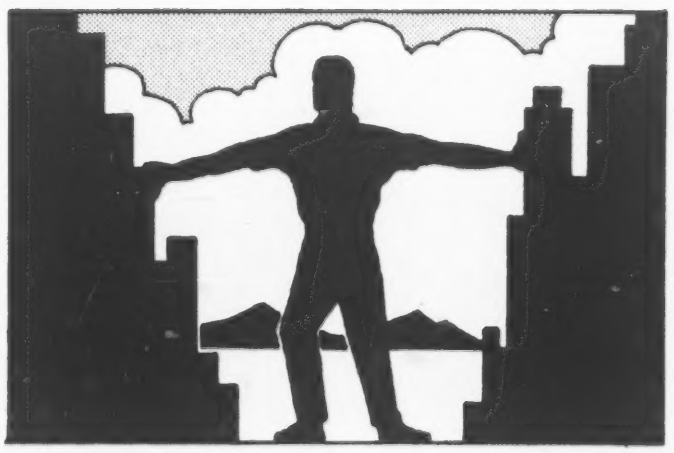
Again it is apparent that the significant sources of pollution are a result of man's activities and population density.

The Air and Water Quality Sub-committee believes that effective air and water quality control can only be brought about by controlling the major contributors to pollution as a whole and not on an individual basis. Hence, the recommendation for a statewide land use plan. Such a plan, properly developed, would limit disruption of the environment by restricting development of any given area to the availability of water which, in turn, would minimize destruction of natural vegetation and soil mantels. Such a plan could also make mass transportation feasible to minimize pollution resulting from this source. By restricting activities in the fragile desert, wind-blown dust (a significant source) and erosion can be reduced. By confining population to designated areas, economical, effective systems for water pollution and solid waste control can be developed to minimize the effects

from these sources. Community space heating systems could become feasible and control of this single source is more reasonable than control of individual sources.

The historic legislation creating the Tahoe Regional Planning Agency considers the significance of the relation of pollution potential and land development. It is only proper that the same consideration be extended to cover the entire State to protect and maintain the environment for the benefit of all.

land use subcommittee conclusions



OPEN SPACE SUBCOMMITTEE

We have reviewed the feedback received from you and make the following comments:

Remarks from Howard Booth, Nevada Open Space Council Task Force on Land Use and Management.

Item #5: We have no objection to the principal of grading zoning about urban centers. We further believe that a gradual transition from high density urban development through rural scenic back country zoning and ultimately to wilderness areas in an appropriate and meaningful way to preserve the integrity of the environment.

Item #9: I am not sure we fully agree with Howard at this time as he relates to the requirements of urban planning for all communities.

It seems to us that Nevada communities are discovering, by themselves, slowly but gradually, that urban planning is a necessary part of reasonable orderly development of cities, towns, and communities in Nevada.

With Nevada's conservative and independent philosophy such as they are today, I do not think a required urban planning statement would be tolerated.

Item #12: The point is well taken regarding the application of the principal of the best or compatible uses. I don't really believe that we mean to infer that the concept of multiple use is bad. The implication was simply that more emphasis should be given to the manpower necessary to enforce the multiple use concept.

Item #19: Howard indicates that some sort of restoration requirements should be in order where the mining industry has destroyed the landscape and/or the natural environment.

Planning in advance for the use of abandoned and exhausted mines and mining areas for conversion to other uses should be explored fully. The geologist should make his report regarding the extent of the mineral extraction and plan for future use of the area. An example might be where extraction of a mineral would cause an impression in the landscape. This might be the time to determine what the future use of the depression could be. It could be shaped for dune buggy use, swimming, or reservoir, motorcycle hill climb, etc.

Comment of Robert A. Rowen, Forest Supervisor, Humboldt National Forest

Bob has an excellent point and his comments must be considered in the final report. His statements are as follows:

> An understanding of the multiple use concept will show that it is only where and when the concept is not practiced or improperly practiced, that deterioration takes place. It is not the concept which needs to be reevaluated, but the misuse or lack of use of the concept which needs to be looked into. The fact is state, federal, and local agencies need the manpower, the funds, the authority, and direction to carry out the concept. (We are in full agreement with his comments and that is exactly what we are getting at when we said the practice of the concept should be reevaluated.)

Comments of the Nevada Ecology Center, P.O. Box 13487, University Station, Reno, Nevada 89507

The Center calls for the setting aside of representative and/or unique wild lands in Nevada as wilderness areas and calling a

moratorium on building at Tahoe. The Nevada Ecology Center's remarks are well taken. I suspect that the setting aside of representative and/or unique wild lands in Nevada would be part of the overall land use study developed by the land use planning agency.

Comments from the League of Women Voters.

We thoroughly agree with and strongly support the comments of the President and the Chairman of the Environmental Quality Committee relating the brevity of the open space report, specifically, the comment "We were impressed with the comprehensive plan for action in the original report and wish that in the summary specific recommendations had been presented by number and in outline form for easier reading. It is particularly important that this committee expand its membership and develop specific legislation related to the many recommendations."

Comments of Mr. Robertson.

Mr. Robertson's remarks regarding billboards are valid and more consideration should be given to it. Eighty-six percent of the land in Nevada is federally owned. With the new emphasis being given by Secretary Hickel on removal of billboards, I suspect much of the billboard problem will be substantially reduced, if not eliminated, in Nevada. However, that does not mean that billboards should not be given the consideration in the preserving of integrity of Nevada's open spaces. The size, construction, and placement of billboards in Nevada's open spaces should be given much thought and careful analysis as any other phase of construction.

forestry subcommittee conclusions

SUPPLEMENT

FORESTRY SUB-COMMITTEE

It has now been over two months since Preserving Nevada's Environmental Heritage has been published. The authors have had a chance to relax and watch the "yeast" that they worked so feverishly to create together, begin to effervesce in the form of congratulations and criticisms. The authors have pondered these comments and found some their own shortcomings which were mainly attributed to time limitations.

It is now time to begin kneading and working the report. This can best be done by this four to five page supplement to the committee reports. This report can highlight specific areas that were not covered in the original publication or elaborate on others.

In the forestry report, one entire portion was edited out because of a space limitation. The topic covers fire protection and is included here.

FIRE PROTECTION

Public interest in protecting the mountains and wildlands from fire stems from the need to protect valuable natural resources and improvements from the threat of aggravated flood damage due to burning of the vegetation and to preserve the natural functions of these mountains and wildlands as watersheds.

Increasing population has complicated control of fires which endanger life and property. Homes and other improvements have

have been built with little regard for behavior of fire and such conversion of wildland increases the chances of disastrous brush and timber fires, exposing people to serious fire threats. Firefighting forces alone cannot always assure protection. Measures to alleviate serious conditions must be planned and built into subdivisions and other developments. Education of the public in the proper use of forests and wild lands is paramount if we expect support and cooperation in protecting the total environment.

The fact that the public is apathetic or poorly educated in the use and management of the land is demonstrated thousands of times each year through littering, carelessness with fire, pollution of air and water, and many other ways. If we ever hope to gain public support and cooperation to attain environmental quality, we must educate and inform the public in the proper use and management procedures of their lands - if they don't understand the problems, they can't help with the solutions.

The mass media contacts (TV, radio and newspapers) have been used for quite some time and have only been effective on a small percentage of the population. If the public is to be informed and regulated as to laws and regulations that exist in a given area, they should be contacted on the ground at the time they are using the area. For the most part this could be a summer (4 to 6 months) program and could be accomplished in two ways in the high density, heavy use areas. At the perimeters of

these areas, checking stations could be set up on the highways furnishing ingress similar to the agricultural "Bug Stations" encountered at various state lines. At these stations, printed information as to facilities available in the area, camping and fire regulations, agencies having responsibilities and how to contact them, etc., could be passed out.

If further information was desired, vehicles could pull off the highway and park and obtain any other desired information These stations could be staffed with high school and college students, and hereby afford more summer employment for this age group. The second phase or method to be applied would be similar to a program applied by the California Division of Forestry called "Project Buco". In this project, the number of field personnel patroling and making face to face prevention contacts and inspections with the using public and resident populations was tripled in Butte County. As a result, the amount of litter normally found in the area was reduced to almost none at all.

The laws regulating fire hazard abatement adjacent to structures and in various wildland operations received almost total compliance. The number of fire incidents in this county had been historically high, but after "Project Buco" was implemented the number of man-caused fires in the county dropped by approximately 75%. Admittedly the increase in personnel requires a substantial increase in salary and equipment budgets, however, the decrease in suppression and litter collection costs nearly

offset the increased personnel cost. For every fire that is prevented, you do not have to consider air and water pollution, soil erosion, physical loss of biologically important elements in the soil, wildlife loss and many other environmental aspects.

The continuance of the mass media I. & E. program supplemented by at least a 100% increase of on the ground prevention personnel is strongly recommended. To implement this program in just the Sierra, Elko and Mt. Charleston areas would require a minimum of twelve additional seasonal personnel devoting 90-95 percent of their time to fire prevention.

In most wildland areas of the state, fire protection is inadequate. At present there is insufficient equipment and manpower to effect quick initial attack on fire a arms. As an example, in the northeastern part of the state initial response time can be as high as one hour and over, because of the distances that have to be traveled from station to fire. The only solution to the problem is to establish more stations in strategic locations, properly equipped and manned. In many areas of the state, fire protection problems are complicated by land ownership patterns. This is especially true in the "checkerboard" railroad public domain ownerships. If somehow public domain ownership could be consolidated into large continuous blocks, it would greatly simplify all phases of administration of both public domain and private lands.

All possible support should be given to research related to all aspects of fires i.e., fire behavior, biological and economic damages inflicted by fire, fire rehabilitation, fire equipment, technology and fire prevention.

Although some research has been devoted to these subjects, there are still far too few facts known to really answer many of the questions we are now faced with and will be asked in the near future.

The need to provide fire protection for the out-of-the-way rural areas is coming more to our attention each year. At present, there is a bill before Congress to establish a 10 million dollar fund to provide equipment and expert advice to protect rural areas of America from losses by fire.

Most assuredly the State of Nevada has a responsibility in this regard also, since it derives tax revenue from private lands in rural areas.

To date, all that we have done in rural areas is try to stimulate interest in the formation of volunteer fire departments and offer training in fire protection and suppression. Much of this is due to lack of funds and greater pressures elsewhere.

A large percentage of the rural land in Nevada is leased or obtained through annual fee from the Federal Government, it is only right that it also should support and provide funding for fire protection of these lands. In most cases the tax base at the county level is not sufficient to support a county fire district of any consequence so as a result, the rural area gets little or no fire protection at the county level.

CUTTING PRACTICES

On pages 71 & 72 of the Forestry Report, "Cutting Practices", are mentioned. It is recommended that at least 12 seed trees of 18 inches diameter breast height or larger should be left per acre on all logging operation areas. It is also recommended

that loggers and subdividers submit detailed information to the State Forester prior to approval and be bonded. These recommendations would cover logging and timberland conversions quite well, however, what about the landowners that just want to cut trees but are not subdividing or logging? Looking at the problem in toto over a large area, many trees are cut this way. With this in mind, the following recommendations are made:

(A) All trees over 24" in diameter breast height will not be cut. No tree will have soils or other materials compacted at all, even temporarily, nearer than half of its greatest branch radius distance from the trunk. These conditions can be modified by written permission from the Nevada Division of Forestry.

(B) No trees will be cut for parking of 100 spaces or greater unless 20% or more of the area is landscaped with natural (in place, wherever possible) materials.

(C) No trees will be cut for parking of 200 spaces or greater unless parking is placed in structure landscapes.

(D) Any disturbance of the soil in areas of any size with slopes greater than 30% must be accompanied by detailed revegetation and sediment control plans and bonds for guarantee.

(E) All cuts and fills must be boxed with natural appearing structures or grassed the same calendar year as they are begun. Grass will be watered until self-sufficient. The effectiveness of the grassed slopes will be guaranteed by bond for 5 years.

RECYCLING

On page 75 of the Forestry report, recycling is mentioned. The July 1970 issue of the Journal of Forestry has an excellent article entitled "Potential Gains in Wood Supplies Through Improved Technology", by L. E. Lassen and Dwight Hair. Some of their figures are quoted below to point out this need for work in this area:

(1) The estimated potential gains in the United States' wood supplies that would be technically and economically feasible by the end of the 1970's through intensified harvesting and utilization research are shown on the following table.

SOURCE of POTENTIAL GAIN	VOLUME (billion cubic feet)
Increased use of or reduction in volume of residues	
Logging	1.4
Primary manufacturing:	
Saw and veneer mills	0.6
Pulp mills:	
Chemical pulping processes*	0.3
Mechanical and groundwood pulping processes*	0.2
Elimination of pulp chips storage losses	0.1
Secondary manufacturing:	
Greater use of machining residues and improved drying practices	0.5
Total potential gains from residues	3.1
Extension of supplies through increased efficiency in manufacturing and construction	0.3
Reuse of paper, fiberboard and wooden debris	1.3
Total potential gains	4.7

*The realization of this potential would involve some shift in use from fuel to pulp. Logging residues offer the largest potential, an estimated 1.4 billion cubic feet. Realization of this potential would require research on ways of economically

salvaging and using residues. This would involve research on methods of bark separation from chips produced from portable units in the woods and collection and transportation systems would reduce the cost of utilizing chunks and pieces of logs, rough and rotten logs, and limbs which compose logging residues. It also would involve research on new logging techniques, including aerial systems and mechanical equipment, which would reduce the cost of tree-length logging and thus increase the proportion of the tree removed from the woods and utilized. Other research areas would include: manufacturing and evaluating products made from residues; evaluating the impact of residue removal on forest management practices; developing methods to measure logging residues; and reviewing timber sale policies.

(2) The potential gain from increased utilization on reduction in the volume of primary manufacturing residues is estimated at 1.2 billion cubic feet, including 0.6 billion from sawmills and planing mills and 0.6 billion from pulp mills.

(3) The potential gains in pulping--0.5 billion cubic feet would come about through research to develop new and higher yielding chemical, mechanical, and groundwood pulping processes. Research leading to the elimination of wood losses in the storage of chips at pulp mills would add another 0.1 billion cubic feet to the wood supply.

(4) The potential gains from the use or reduction of wood residues in secondary manufacturing is estimated at 0.5 billion cubic feet.

(5) The potential gain from research to extend wood supplies by increasing the efficiency of wood use in construction and and manufacturing is estimated at 0.3 billion cubic feet. Most of this potential gain would be in lumber, veneer and plywood, the products most likely to be in short supply.

A number of kinds of research would contribute to realization of this gain. The development of a fully automated, species independent, stress-grading system which would permit a reduction in the size of structural members or an increase in spacing in construction is one example. Research leading to changes in design would more efficiently utilize wood in construction and serve as the basis for changing archaic and unrealistic building codes.

(6) In 1969, about 58.6 million tons of paper and fiberboard were consumed in the United States. Of this volume only 10.6 million tons, 18% of the total, was reused in the manufacture of pulp. (This volume is equivalent to 1.1 billion cubic feet of wood.)

In some western European countries and Japan up to 50% of the paper and fiberboard is reused. So it is evident that the reuse of paper and fiberboard represents a tremendous potential for extending wood and supplies. At the same time, increasing the reuse of paper will have an impact on reducing solid wastes, since up to half of solid wastes are composed of paper and wood fiber products.

In addition to paper and fiberboard, large volumes of wood

debris are created each year from the demolition of buildings, wooden containers, unserviceable pallets, and wooden furniture. The disposal of this material and the unused paper and fiberboard is costly and, more important, is causing an increasingly serious pollution problem.

Nearly all of this material is suitable for the manufacture of pulp. The potential annual gain from this reservoir is estimated to be equivalent to 1.3 billion cubic feet of groundwood per year. Realization of this potential would require research on economic ways of separating paper and wood debris from other solid municipal wastes and the development of systems of collecting and concentrating paper and fiberboard in large metropolitan centers.

All of these figures help point out that in Nevada we need to be recycling more wood products rather than cutting the few trees we have.